CS CamScanner

PONY

سلسلة كتب الأستاذ

ICT

By

Eng. Osama Youssef

Preparation Team

Hamdi Ghoniem

Gamal Abdelnaser Rezk

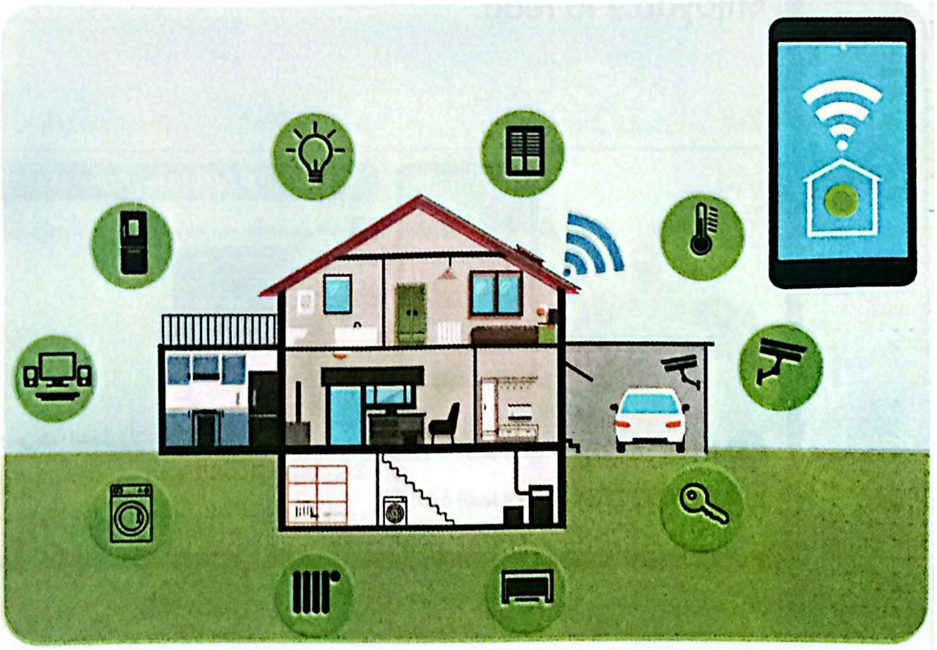
Suzy Atef

Shimaa Abaza

2nd

Preparatory

First Term



CS CamScanner

Contents

Unit One **Artificial Intelligence and Protecting Our Digital Data**

Lesson 1 Intelligent Systems and Their Impact on Climate Change......... 5

Lesson 2 Advanced Cyber Threats.. 26

Lesson 3 Big Data 35

Lesson 4 Big Data and Its Relationship to Artificial Intelligence 46

Summary of Unit 1 .... **58**

Unit Two **Website Design and Creation**

Lesson 1 Principles of Designing Professional and Attractive Website Interfaces... 64

Lesson 2 Web Page Format 76

Lesson 3 My Digital Project for My School 86

Lesson 4 Creating Your Website with the Help of Artificial Intelligence 95

Summary of Unit 2 .... **116**

Final Exams 120

Model Answers 143

CS CamScanner

Unit 1

Artificial Intelligence and Protecting Our Digital Data

Unit Lessons:

Lesson 1 Intelligent Systems and Their Impact on Climate Chang

Lesson 2 Advanced Cyber Threats

Lesson 3 Big Data

Lesson 4 Big Data and Its Relationship to Artificial Intelligence

Lesson 1

Intelligent Systems and Their Impact on Climate Change

» In previous years, we learned about Intelligent Systems such as:

1. Internet of Things (IoT): It's a technology that connects different devices to the internet to exchange data.
2. Artificial Intelligence (AI): It's the ability of a machine to think and make decisions like a human.
3. Robotics: They're devices that can perform tasks similar to humans.

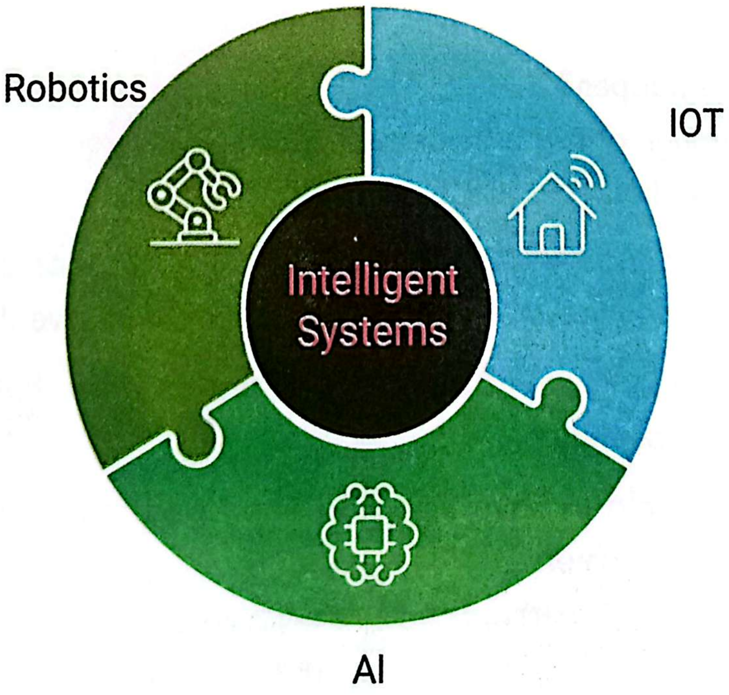
① إنترنت الأشياء (IoT): تِقْنية تقوم بربط الأجهزة المختلفة بالإنترنت من أجل تبادل البيانات.

② الذكاء الاصطناعي (AI): قدرة الآلة على التفكير واتخاذ القرارات مثل الإنسان.

③ الروبوتات: أجهزة يُمكنها أداء مهام مشابهة لمهام الإنسان.

» In this lesson, we will study how these three technologies work together to form interconnected intelligent systems that are useful in our lives.

« في هذا الدرس، سوف ندرس كيف تعمل هذه التقنيات الثلاث معًا؛ لتشكيل أنظمة ذكية مترابطة مفيدة في حياتنا.



CamScanner

Example:

- Imagine a smart robot that can:
  - Clean your house.
  - Avoid obstacles.
  - Move around on its own.
  - Charge itself when the battery runs out.
- This robot uses:
  - IoT → to connect to the internet.
  - AI → to analyze data and make decisions.
  - Robotics → to move and perform tasks.
- When these three technologies are combined, we get Smart Connected Systems.

• تخيَّل روبوتًا ذكيًّا يمكنه أن: ينظِّف منزلك، يتحرَّك بمفرده، يتجنَّب العقبات، يشحن نفسه عندما تنفد بطاريته.

• يستخدم هذا الروبوت إنترنت الأشياء (IoT) للاتصال بالإنترنت، والذكاء الاصطناعي (AI) لتحليل البيانات واتخاذ القرارات، والروبوتات (Robotics) للحركة وأداء المهام.

• عند دمج هذه التقنيات الثلاث معًا، نحصل على أنظمة ذكية متصلة.

The Concept of Interconnected Intelligent Systems
مفهوم الأنظمة الذكية المترابطة

- Nowadays, devices can communicate using IoT, think using AI, and move using robotics.
  How does this happen?
- It happens through a new technology that combines three important fields: IoT, AI, and robotics.
- Together, they form Interconnected Smart Systems that can communicate, think, and perform tasks without constant human intervention.
- We use these smart systems daily without realizing it, whether at home, school, or the hospital.
- These systems help us save time and effort and make our lives more comfortable and easier.

« في الوقت الحاضر، يمكن للأجهزة أن تتواصل باستخدام إنترنت الأشياء (IoT)، وأن تُفكِّر باستخدام الذكاء الاصطناعي (AI)، وأن تتحرك باستخدام الروبوتات (Robotics).

CamScanner

كيف يحدث ذلك؟

» يحدث هذا من خلال تِقْنية جديدة تجمع بين ثلاثة مجالات مهمة: إنترنت الأشياء والذكاء الاصطناعي والروبوتات.
» معًا تُشكِّل هذه المجالات أنظمة ذكية مترابطة يمكنها التواصل والتفكير وأداء المهام دون تدخل بشري مستمر.
» نحن نستخدم هذه الأنظمة الذكية يوميًّا دون أن ندرك ذلك، سواء في المنزل أو المدرسة أو المستشفى.
» تساعدنا هذه الأنظمة على توفير الوقت والجهد، وجعل حياتنا أكثر راحة وسهولة.

Example ①: The Smart Home

» In smart homes, there is communication between the three interconnected intelligent systems:

① IoT: Devices, like lights, air conditioners, and appliances, are connected to the internet and mobile phone. Therefore, lighting and temperature can be controlled.

② AI: It understands the situation; if the weather is hot, it automatically turns on the air conditioner.

» It can detect when you return from school at 2 p.m. and turn on the air conditioner before you arrive.

② Robotics: They can prepare food, or clean the floor with a vacuum cleaner, or move objects.

المثال (١): المنزل الذكي:

في المنازل الذكية، يوجد تواصل بين الأنظمة الذكية المترابطة الثلاثة:

① إنترنت الأشياء (IoT): الأجهزة مثل الأضواء والمُكيِّفات والأدوات المنزلية متصلة بالإنترنت والهاتف المحمول؛ وبالتالي يمكن التحكم في الإضاءة ودرجة الحرارة.

② الذكاء الاصطناعي (AI): يفهم الموقف؛ فإذا كان الطقس حارًّا، يقوم بتشغيل المُكيِّف تلقائيًّا.

يمكنه اكتشاف وقت عودتك من المدرسة في الساعة الثانية ظهرًا وتشغيل المُكيِّف قبل وصولك.

③ الروبوتات (Robotics): يمكنها إعداد الطعام، أو تنظيف الأرضية باستخدام المكنسة الكهربائية، أو نقل الأشياء.

CS CamScanner

Example 2: Car Breakdown on the Road

- Imagine you are traveling with your father, and the car suddenly breaks down. This is when the role of smart systems starts.

المثال (٢): تعطل السيارة على الطريق: تخيَّل أنك تسافر مع والدك، وفجأة تعطلت السيارة؛ هنا يبدأ دور الأنظمة الذكية.

1 Internet of Things (IoT):

- The car is equipped with sensors connected to the internet and includes GPS.
- When a breakdown occurs, the car sends a message to the maintenance center or phone app.
- Example of a message: Engine failure – Location: Cairo – Suez Road – Km 75

1 إنترنت الأشياء:

- تكون السيارة مُجهَّزة بحساسات متصلة بالإنترنت، وتتضمن نظام تحديد المواقع (GPS).
- عند حدوث عطل، تقوم السيارة بإرسال رسالة إلى مركز الصيانة أو إلى تطبيق الهاتف.
- مثال على الرسالة: عطل في المحرك – الموقع: طريق القاهرة – السويس – الكيلو 75.

2 Artificial Intelligence (AI):

- AI analyzes the breakdown data.
- It suggests the causes, such as overheating, low oil, etc.
- AI then suggests solutions, such as Stop the car - A maintenance robot will be sent to you and be on its way.

2 الذكاء الاصطناعي:

- يقوم الذكاء الاصطناعي بتحليل بيانات العطل.
- يقترح الأسباب مثل: ارتفاع درجة الحرارة، انخفاض مستوى الزيت... إلخ.
- ثم يقترح الحلول، مثل: أوقف السيارة – سيتم إرسال روبوت صيانة إليك وهو في الطريق.

CamScanner

③ Robotics:

- A maintenance robot equipped with tools is sent to the car.
- It can Inspect the vehicle. Repair minor faults by opening the hood, and replace the damaged parts.
- If it is unable to repair the damage, it automatically requests a transport vehicle.

③ الروبوتات (Robotics):

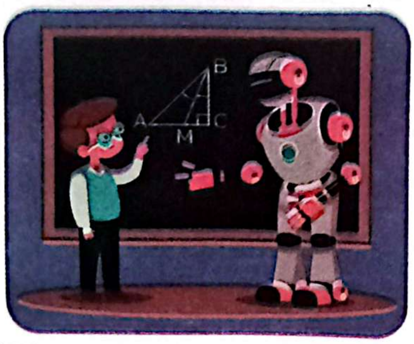
- يتم إرسال روبوت صيانة مُزوَّد بالأدوات إلى السيارة.
- يمكنه فحص المركبة، وإصلاح الأعطال البسيطة بفتح غطاء المحرك، واستبدال الأجزاء التالفة.
- وإذا لم يتمكن من إصلاح العطل، فإنه يطلب تلقائيًا سيارة نقل.

Intelligent Component	Function
① IOT	Transmits information + determines location
② AI	Analyzes problems + makes decisions
③ Robotics	performs repairs or field assistance

Example ③: School Robot

1. IoT: It connects the robot to online educational resources.
2. AI: It helps the robot understand students' questions and respond correctly.
3. Robotics: They speak, write, or move to display answers.

- Example: If a student asks: What is the capital of Egypt?, the robot answers: Cairo.



المثال (٣): روبوت المدرسة:

① إنترنت الأشياء (IoT): يربط الروبوت بالمصادر التعليمية عبر الإنترنت.

② الذكاء الاصطناعي (AI): يساعد الروبوت على فهم أسئلة الطلاب والرد عليها بشكل صحيح.

③ الروبوتات (Robotics): تتحدث، وتكتب، أو تتحرك لعرض الإجابات.

- مثال: إذا سأل الطالب: «ما عاصمة مصر؟» فيجيب الروبوت: «القاهرة».

CamScanner

Example 4: Smart Farming

1. IoT: Sensors transmit data about the condition of the soil.
2. AI: It analyzes this data to determine whether the soil needs water.
3. Robotics: They automatically water plants or spray pesticides.

» Example: If the soil is dry, the system decides to water the soil without the farmer's intervention.

المثال (٤): الزراعة الذكية:

1. إنترنت الأشياء (IoT): تنقل الحساسات بيانات حول حالة التربة.
2. الذكاء الاصطناعي (AI): يُحلِّل هذه البيانات ليحدد ما إذا كانت التربة بحاجة إلى الماء.
3. الروبوتات (Robotics): تقوم بري النباتات تلقائيًا أو رش المبيدات.

مثال: إذا كانت التربة جافة، يقرر النظام ريّها دون تدخُّل المزارع.

Example 5: Voice Assistant

1. IoT: It's used to access information online.
2. AI: It understands what you say and gives an appropriate response.
3. Robotics: They aren't used here as the device doesn't move; it just speaks).

» Example: If you say: What's the weather today?, the device answers clearly.

المثال (5): المساعد الصوتي:

1. إنترنت الأشياء (IoT): يُستخدم للوصول إلى المعلومات عبر الإنترنت.
2. الذكاء الاصطناعي (AI): يفهم ما تقوله ويعطي استجابة مناسبة.
3. الروبوتات Robotics غير مستخدمة هنا (الجهاز لا يتحرك؛ بل يقتصر على التحدث).

« مثال: إذا قلت: ما حالة الطقس اليوم؟ فيجيب الجهاز بوضوح.

CS CamScanner

Example ⑥: Smart Car

1. IoT: It connects the car to satellites and maps, and the sensors collect data.
2. AI: It analyzes road hazards.
3. Robotics: They control the vehicle's movement, such as stopping or changing the direction.

» Example: If a child crosses the road → the car stops automatically.

المثال (٦): السيارة الذكية:

① إنترنت الأشياء (IoT): يربط السيارة بالأقمار الصناعية والخرائط، وتقوم الحساسات بجمع البيانات.

② الذكاء الاصطناعي (AI): يُحلِّل مخاطر الطريق.

③ الروبوتات (Robotics): تتحكَّم في حركة السيارة مثل: التوقف أو تغيير الاتجاه.

« مثال: إذا عبر طفل الطريق ← تتوقَّف السيارة تلقائيًا.

Intelligent Systems and Their Impact on Climate Change
الأنظمة الذكية وتأثيرها على تغيُّر المناخ

» Today, Earth faces major challenges due to climate change, such as:

1. Rising heat
2. Pollution
3. Melting ice
4. Drought
5. Floods

» Smart systems can monitor the environment, reduce pollution, and protect the planet.

» We will now review some of these problems and how intelligent systems can solve them.

« اليوم، تواجه الأرض تحديات كبيرة بسبب تغيُّر المناخ مثل: ارتفاع درجات الحرارة، التلوث، ذوبان الجليد، الجفاف، الفيضانات.

« يمكن للأنظمة الذكية: مراقبة البيئة، تقليل التلوث، حماية الكوكب.

« سنستعرض الآن بعض هذه المشكلات، وكيف يمكن للأنظمة الذكية حلها.

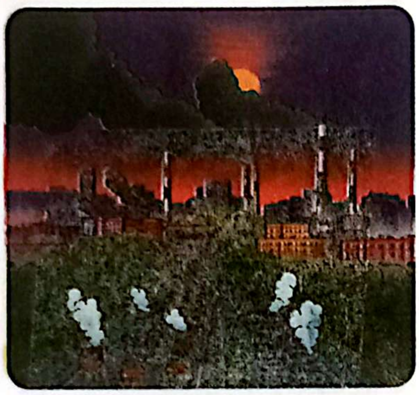
CamScanner

1 Air Pollution:

» Causes: Car exhausts, factories, and garbage burning

» Solution: Using smart systems:

1. IoT: It measures the level of harmful gases in the air.
2. AI: It identifies polluted areas and suggests reducing the number of cars.
3. Robotics: They grow plants or use air purifiers.



تلوث الهواء:

- الأسباب: عوادم السيارات، والمصانع، وحرق القُمامة.

الحل: باستخدام الأنظمة الذكية:

1. إنترنت الأشياء (IoT): يقيس مستوى الغازات الضارة في الهواء.
2. الذكاء الاصطناعي (AI): يحدد المناطق الملوثة ويقترح تقليل عدد السيارات.
3. الروبوتات (Robotics): تزرع النباتات أو تستخدم أجهزة تنقية الهواء.

2 Water Shortage & Drought:

» Causes: Excessive water use, lack of rain, and irregular irrigation

» Solution: Using smart systems:

1. IoT: Sensors measure the soil moisture and report when the land needs water.
2. AI: It calculates the amount of water needed.
3. Robotics: They automatically irrigate the land when needed.

» Example: The land is only irrigated when sensors signal that it needs water, saving huge amounts.

نقص المياه والجفاف:

- الأسباب: الإفراط في استخدام المياه، وقلة الأمطار، والري غير المنتظم.

الحل: باستخدام الأنظمة الذكية:

1. إنترنت الأشياء (IoT): تقيس الحساسات رطوبة التربة وتُبلِّغ عند حاجة الأرض إلى الماء.
2. الذكاء الاصطناعي (AI): يحسب كمية المياه المطلوبة.
3. الروبوتات (Robotics): تقوم بريِّ الأرض تلقائيًا عند الحاجة.

- مثال: يتم ريُّ الأرض فقط عندما تشير الحساسات إلى حاجتها للماء؛ مما يوفر كميات هائلة من الماء.

CamScanner

3 Global Warming:

- Have you noticed that the weather in the summer is hotter than before? This is due to global warming.
- Cause: Increased harmful gases, such as carbon dioxide from cars and factories.
- Solution: Using smart systems:

1. IoT: Sensors measure the temperature and air pollution.
2. AI: It analyzes the sensors' data and suggests solutions to reduce pollution.
3. Robotics: They can plant trees or automatically purify the air.

- Example: When the temperature rises, the smart system sends a warning to the government to reduce the factories' exhausts and operate air purification filters.

الاحتباس الحراري:

- هل لاحظت أن الطقس في الصيف أصبح أكثر حرارة مما كان عليه من قبل؟ هذا بسبب الاحتباس الحراري.
- السبب: زيادة الغازات الضارة مثل ثاني أكسيد الكربون الناتج عن السيارات والمصانع.

الحل: استخدام الأنظمة الذكية:

1. إنترنت الأشياء (IoT): تقيس الحساسات درجة الحرارة ونسبة تلوث الهواء.
2. الذكاء الاصطناعي (AI): يحلل بيانات الحساسات ويقترح حلولًا لتقليل التلوث.
3. الروبوتات (Robotics): يمكنها زراعة الأشجار أو تنقية الهواء تلقائيًا.

- مثال: عند ارتفاع درجة الحرارة، يرسل النظام الذكي إنذارًا إلى الحكومة؛ لتقليل عوادم المصانع وتشغيل فلاتر تنقية الهواء.

4 Floods & Heavy Rain:

- **Cause:** Climate change leads to sudden and intense rainfall.
- **Solution:** Using smart systems:

1. **IoT:** It measures the amount of rains and water speed.
2. **AI:** It sends warnings before flooding and suggests rescue routes.
3. **Robotics:** They help drain water or rescue people in emergency situations.

- **Example:** When sensors detect that water is starting to rise, the road is automatically closed and cars are directed to safe routes.

الفيضانات والأمطار الغزيرة:

- **السبب:** يؤدي تغيُّر المناخ إلى هطول أمطار مفاجئة وغزيرة.
- **الحل:** باستخدام الأنظمة الذكية:

1. **إنترنت الأشياء (IoT):** تقيس كمية الأمطار وسرعة المياه.
2. **الذكاء الاصطناعي (AI):** يرسل تحذيرات قبل حدوث الفيضانات ويقترح طرق الإنقاذ.
3. **الروبوتات (Robotics):** تساعد في تصريف المياه أو إنقاذ الأشخاص في حالات الطوارئ.

- **مثال:** عندما تكتشف الحساسات بدء ارتفاع منسوب المياه، يُغلق الطريق تلقائيًا وتُوجَّه السيارات إلى طرق آمنة.

5 Melting Ice at the Poles:

- There are mountains of ice at the North and South Poles, but they have begun to melt due to global warming.
- **Cause:** Ongoing climate change, which is raising temperatures
- **Solution:** Using smart systems:

1. **IoT:** It monitors the ice and measures its rate of melting.
2. **AI:** It predicts when the ice will melt and suggests prevention methods.
3. **Robotics:** They monitor ice or protect it from rapid erosion.

- **Example:** Special robots send accurate data to scientists to determine how to reduce pollution and global warming.

CamScanner

ذوبان الجليد في القطبين: توجد جبال من الجليد في القطب الشمالي والجنوبي، لكنها بدأت تذوب بسبب الاحتباس الحراري.

- السبب: التغير المناخي المستمر الذي يؤدي إلى ارتفاع درجات الحرارة.

الحل: باستخدام الأنظمة الذكية:

1. إنترنت الأشياء (IoT): يراقب الجليد ويقيس معدل ذوبانه.
2. الذكاء الاصطناعي (AI): يتنبأ بوقت ذوبان الجليد ويقترح طرقًا للوقاية.
3. الروبوتات (Robotics): تراقب الجليد أو تحميه من التآكل السريع.

- مثال: ترسل الروبوتات الخاصة بيانات دقيقة إلى العلماء؛ لتحديد كيفية تقليل التلوث والاحتباس الحراري.

Conclusions:

- Smart systems are not just advanced inventions, they are effective tools that help protect our planet from dangers.
- Using IoT, AI, and robotics, we can create a better future and preserve the environment for future generations.

- الأنظمة الذكية ليست مجرد اختراعات متقدمة، بل هي أدوات فعّالة تساعد في حماية كوكبنا من الأخطار.
- من خلال استخدام إنترنت الأشياء (IoT) والذكاء الاصطناعي (AI) والروبوتات (Robotics)، يمكننا صنع مستقبل أفضل، والحفاظ على البيئة من أجل الأجيال القادمة.

أهم الكلمات والمصطلحات

Robotics	الروبوتات	Smart home	منزل ذكي
Smart systems	أنظمة ذكية	Voice assistant	مساعد صوتي
Interconnected systems	أنظمة مترابطة	Climate change	تغير المناخ
Maintenance center	مركز صيانة	Global warming	الاحتباس الحراري
Engine failure	عطل في المحرك	Air pollution	تلوث الهواء
Precise location	الموقع الدقيق	Water shortage	نقص المياه
Engine overheating	سخونة المحرك	Heavy rain	أمطار غزيرة
Low oil	انخفاض الزيت	Melting ice	ذوبان الجليد
Damaged part	جزء تالف	Air purification	تنقية الهواء
Transport vehicle	مركبة نقل	Soil moisture	رطوبة التربة
Field assistance	مساعدة ميدانية	Rescue routes	طرق إنقاذ
Daily lives	حياتنا اليومية		

Exercises on Lesson 1

1 Choose the correct answer:

1. Which of the following technologies allow(s) devices to connect to the internet and exchange data?
   a. AI b. Robotics c. IoT d. VR

2. What is the main function of artificial intelligence (AI)?
   a. Data transfer only. b. Data analysis and decision making.
   c. Device manufacturing. d. Powering the internet.

3. What is the name given to systems that combine IoT, AI, and robotics?
   a. Traditional systems. b. Manual systems.
   c. Mechanical systems. d. Interconnected intelligent systems.

4. How does IoT help in a smart home?
   a. By shutting down all devices. b. By repairing broken devices.
   c. By connecting devices to the internet to control them.
   d. By manually operating devices.

5. Why is artificial intelligence important in intelligent systems?
   a. Because it analyzes data and makes intelligent decisions
   b. Because it manufactures devices.
   c. Because it repairs broken devices.
   d. Because it provides free internet.

6. How can robots help in agriculture?
   a. By selling crops. b. By automatically watering plants.
   c. By shutting down farms. d. By storing water only.

CS CamScanner

7. What is the main role of sensors in IoT?
   a. Sending text messages.
   b. Manually operating devices.
   c. Collecting and transferring data.
   d. Repairing networks.

8. How can smart systems help reduce pollution?
   a. By increasing vehicle exhausts.
   b. By ignoring the problem.
   c. By shutting down all factories.
   d. By monitoring air quality and suggesting solutions.

9. If a car is equipped with IoT and AI, what can it do when a malfunction occurs?
   a. Send a message to the maintenance center with the location.
   b. Turn off without informing the driver.
   c. Wait until the driver detects the fault.
   d. Shut down all systems.

10. How can AI help manage energy in a smart home?
   a. By turning on appliances randomly.
   b. By analyzing usage patterns and saving energy.
   c. By turning off electricity completely.
   d. By increasing energy consumption.

11. If the soil is dry, how can smart systems in agriculture react?
   a. Ignore the problem.
   b. Reduce the amount of water.
   c. Send a message to the farmer without taking any action.
   d. Irrigate the soil automatically.

12. How can robots help in floods?
   a. By increasing the water level.
   b. By closing all roads for no reason.
   c. By draining water or rescuing people.
   d. By ignoring warnings.

13 📖 What action can AI take when it detects increased air pollution?

a. Ignore the data.

b. Send warnings to residents and reduce factory emissions.

c. Increase pollution intentionally.

d. Turn off all devices.

14 📖 What is the main difference between IoT and AI?

a. AI connects to the internet, while IoT analyzes data.

b. IoT builds robots, while AI repairs them.

c. IoT connects to the internet, while AI analyzes data.

d. There is no difference between them.

15 📖 Why are robots considered an important part of intelligent systems?

a. Because they completely replace humans.

b. Because they perform mechanical or motor tasks based on AI decisions.

c. Because they operate without an internet connection.

d. Because they only analyze data.

16 📖 How can intelligent systems help fight melting ice?

a. By increasing the temperature.

b. By melting the ice more quickly.

c. By ignoring the problem.

d. By monitoring the melting rate and proposing solutions.

17 📖 What is the potential drawback of fully relying on IoT for smart systems?

a. Reducing the efficiency of devices.

b. Increasing the internet speed.

c. Inability to make decisions without AI.

d. No need for robots.

CS CamScanner

18 How can AI improve the efficiency of self-driving cars?

a. By increasing fuel consumption.

b. By analyzing traffic and making safe decisions.

c. By stopping the car suddenly.

d. By ignoring traffic signals.

19 If you wanted to design a smart system to reduce water consumption in a school, what components would you need?

a. IoT to monitor water consumption, AI to analyze data, and robots to automatically turn off taps.

b. Air conditioners only.

c. Smartphones without an internet connection.

d. Standard lighting systems.

20 How can robots be integrated into education using smart systems?

a. By completely replacing teachers.

b. By ignoring students' needs.

c. By stopping all educational activities.

d. By helping students solve questions and providing interactive explanations.

21 What is the suggested smart solution to address the problem of drought in agriculture?

a. Using IoT to measure soil moisture, AI to calculate the required amount of water, and robots for automatic irrigation.

b. Increasing water irrigation without analysis.

c. Stopping agriculture completely.

d. Relying only on rainfall.

CamScanner

22 How can a regular hospital be transformed into a smart hospital using smart systems?

a. By removing all medical devices.

b. By stopping all medical services.

c. By linking medical devices to IoT, using AI to diagnose patients, and robots to assist in operations.

d. By relying only on staff.

23 What is the smart solution to reduce traffic congestion in major cities?

a. Increasing the number of cars.

b. Using IoT to monitor traffic, AI to analyze data and direct cars, and robots to manage traffic lights.

c. Closing all roads.
d. Ignoring the problem.

24 What is the main drawback of using robots in elderly care?

a. Inability to provide emotional support like humans.

b. Increased efficiency.
c. Time saving.

d. Cost reduction.

25 How can the impact of intelligent systems on the environment be evaluated?

a. They are not useful.

b. They help monitor pollution and suggest sustainable solutions.

c. They increase pollution.
d. They are simply expensive.

26 What is one potential downside of self-driving cars?

a. Their complete reliance on artificial intelligence may lead to errors in the event of a system failure.
b. They save energy.

c. They improve road safety.
d. They reduce accidents.

27 How can the role of artificial intelligence in education be evaluated?

a. It completely replaces teachers.

b. It is not useful.

c. It reduces students' interaction.

d. It is a tool to enhance the learning experience and provide personalized explanation.

28 If you were asked to design a robot to assist the elderly, what features would you add?

a. The ability to remind them of their medication times and call for help in emergencies.

b. The ability to clean only.

c. The ability to play only.

d. Not communicating with them.

29 How can an early warning system for natural disasters be developed using smart systems?

a. By ignoring data.

b. By waiting until the disaster occurs.

c. By shutting down all systems.

d. By connecting sensors to the IoT, using AI to predict disasters, and sending warnings via robots.

30 What is an innovative function for using robots in public parks?

a. Planting and trimming trees, and cleaning parks automatically.

b. Neglecting plants.

c. Increasing litter.

d. Not caring for visitors.

CamScanner

31 📖 How can energy efficiency in cities be improved using smart systems?

a. By increasing the consumption.

b. By turning off electricity completely.

c. By using IoT to monitor consumption, AI to analyze data, and robots to automatically adjust appliances.

d. By ignoring the problem.

32 📖 What are some innovative solutions to reduce waste in homes?

a. Increased waste.

b. Using robots to automatically sort waste, IoT to monitor quantities, and AI to suggest recycling routes.

c. Dumping waste on the streets.

d. Inattention.

33 📖 What do IoT, AI, and robotics have in common in smart systems?

a. They all operate independently without connectivity.

b. There is no commonality.

c. They are limited to large industries only.

d. They integrate to create smart systems capable of communication, analysis, and implementation.

34 📖 What is the biggest challenge in implementing smart systems on a large scale?

a. High cost and maintenance requirements.

b. Increased speed.

c. Decreased efficiency.

d. Unnecessary.

35 📖 How can smart systems improve the quality of life in cities?

a. By increasing pollution.

b. By shutting down all services.

c. By improving services such as transportation, health, and energy management.

d. By ignoring the needs of the inhabitants.

CamScanner

36 What is the evidence that smart systems are successful in agriculture?

a. Improving crops and reducing waste through smart irrigation and precise monitoring.

b. Increasing water waste.

c. Neglecting farms.

d. No results found.

37 What is the most balanced view about the future of smart systems?

a. They will completely replace humans in all areas.

b. They will be life-enhancing tools with ethical controls.

c. They will be completely useless.

d. They will only increase problems.

2 Put (T) or (F):

1. IoT connects devices to the internet for sharing data. ( )
2. Robotics involve devices that can move and perform tasks similar to humans. ( )
3. Interconnected intelligent systems need humans to control every action. ( )
4. In a smart home, AI can turn on the air conditioner before you arrive. ( )
5. A smart car uses robotics to analyze road hazards. ( )
6. IoT in smart farming measures soil moisture to determine watering needs. ( )
7. Voice assistants use robotics to respond to questions. ( )
8. Smart systems can help reduce air pollution by measuring harmful gases. ( )
9. Global warming is caused by a decrease in carbon dioxide emissions. ( )
10. Smart systems can predict floods by measuring rainfall. ( )

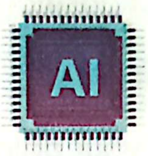
CamScanner

3 Complete in the blanks:

1. .... connects devices to the internet to exchange data.
2. .... allows machines to think like humans and make decisions.
3. A .... car can detect dangers on the road and stop automatically.
4. Excessive use of water and lack of rain cause a problem called ....
5. In smart farming, ... measure the soil moisture and send data to the system.
6. .... are created by combining IoT, AI, and robotics.

CS CamScanner

Play with PONY

			
1 It analyzes the problem and makes appropriate decisions.			
2 It performs repairs or field assistance.			
3 It connects different devices to the internet to exchange data.			
4 It understands the situation; if the weather is hot, it automatically turns on the air conditioner.			
5 In smart farming, it can automatically water plants or spray pesticides.			
6 A smart car automatically sends a message to a maintenance center or an app on your phone and determines the location using GPS.			

Lesson 2

Advanced Cyber Threats

- In recent years, we have studied how to protect your personal data by:
  1. Choosing strong passwords.
  2. Updating antivirus software.
- In this lesson, we will discuss one of the advanced methods hackers use to steal your data.

Advanced Cyber Threats التهديدات السيبرانية المتقدمة

- Hackers are like highly skilled thieves.
- They use sophisticated methods to harm us or steal our information.
- These methods are called advanced cyber threats.
- Advanced cyber threats are not limited to simple viruses, but carefully planned attacks that exploit:
  1. Vulnerabilities in systems or devices.
  2. Our behavior as users.
- Example:
  - A thief trying to break into your home will not only try to break down the front door, but also monitor when you leave, try to enter through the back window, or pretend to be a repairman.
  - This is exactly what hackers attempt in the digital world.

الهاكرز مثل لصوص محترفين للغاية، يستخدمون طرقًا متطورة لإيذائنا أو سرقة معلوماتنا.

تُسمى هذه الطرق التهديدات السيبرانية المتقدمة. التهديدات السيبرانية المتقدمة لا تقتصر على الفيروسات البسيطة، بل هي هجمات مخططة بعناية تستغل: الثغرات في الأنظمة أو الأجهزة، وسلوكنا كمستخدمين.

مثال: اللص الذي يحاول اقتحام منزلك لن يكتفي بمحاولة كسر الباب الأمامي، بل قد يراقب وقت خروجك من المنزل، ويحاول الدخول من النافذة الخلفية، أو يتظاهر بأنه عامل صيانة.

• هذا بالضبط ما يحاول الهاكرز القيام به في العالم الرقمي.

CamScanner

Types of Advanced Cyber Threats

1 Ransomware:

» It is a type of malware that:

1. Encrypts your files (makes them unreadable).
2. Locks your devices.
3. Demands money (a ransom) to regain access.

• برنامج الفدية: هو نوع من البرمجيات الخبيثة يقوم بـ:

1. تشفير ملفاتك (جعلها غير قابلة للقراءة).
2. قفل أجهزتك.
3. يطلب مبلغًا ماليًا (فدية) لاستعادة الوصول إليها.

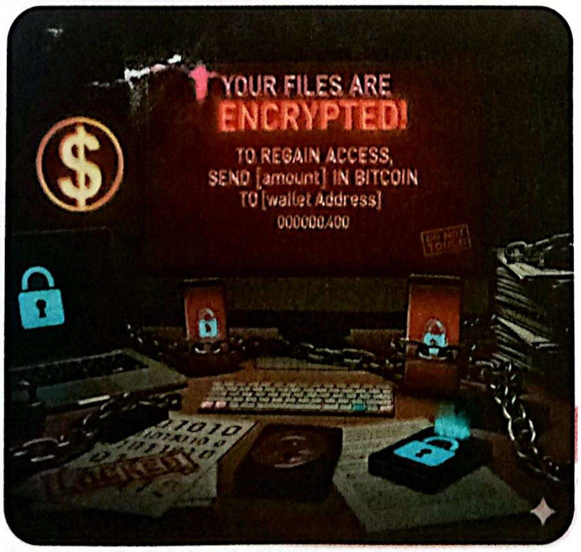
How does it work?

» These programs are often spread via:

1. Suspicious emails.
2. Malicious websites or links.
3. Downloading software from an untrusted site.

» Once they infiltrate your device:

1. They quickly encrypt your files.
2. A ransom message appears.



كيف يعمل؟: غالبًا ما تنتشر هذه البرامج عبر:

1. رسائل البريد الإلكتروني المشبوهة.
2. المواقع أو الروابط الضارة.
3. تحميل برامج من مواقع غير موثوقة.

بمجرد أن تتسلل إلى جهازك:

تقوم بسرعة بتشفير ملفاتك، وتظهر رسالة تطالبك بدفع الفدية.

2 Social Engineering:

- Social engineering is not a hack of hardware or software.
- It is a hack of minds!
- It is the art of tricking people into revealing confidential information or performing harmful actions.

هندسة الاجتماعية ليست اختراقًا للأجهزة أو البرامج، إنها اختراق للعقول!
ي فن خداع الأشخاص لجعلهم يكشفون معلومات سرية أو يقومون بأعمال ضارة.

Advanced social engineering Methods

1. Spear phishing
2. Pretexting
3. Baiting

1 Spear phishing:

- It's an advanced type of phishing that targets specific individuals or organizations using highly personal and convincing emails or text messages.
- Attackers rely on gathering detailed information about you from social media and company websites to convince you to trust them.

2 Pretexting:

- Attackers create a fake story or scenario to trick the victim into obtaining information or performing a specific action.
- Example: They may pretend to be a technical support employee or a bank official.

3 Baiting: Attackers offer the victim something attractive.

- Example: A free USB drive that actually contains malware.

طرق متقدمة للهندسة الاجتماعية:

❶ التصيد المُوجَّه:

- هو نوع متقدم من التصيد يستهدف أفرادًا أو منظمات محددة باستخدام رسائل بريد إلكتروني أو نصوص شخصية ومقنعة للغاية.
- يعتمد المهاجمون على جمع معلومات تفصيلية عنك من وسائل التواصل الاجتماعي ومواقع الشركات لإقناعك بالثقة بهم.

❷ الاختلاق:

- يقوم المهاجمون بإنشاء قصة أو سيناريو وهمي لخداع الضحية؛ من أجل الحصول على معلومات أو دفعه للقيام بإجرا -
- مثال: قد يتظاهر بأنه موظف دعم فني أو مسئول في البنك.

❸ الإغراء: يقدم المهاجمون للضحية شيئًا جذابًا. • مثال: وحدة USB مجانية تحتوي في الحقيقة على برمجيات خبيثة

CamScanner

3 Distributed Denial-of-Service (DDoS) Attacks:

- Imagine a popular website that many people use.
- Attackers order a huge number of devices to access it at the same time.
- The site becomes so congested that it can't provide services to visitors and consequently stops working.

How it works ?

- The attacker uses multiple compromised devices, known as botnets.
- These devices send massive amounts of requests to a website server.
- This slows down or disables the website and prevents legitimate users from accessing it.

• هجمات حجب الخدمة الموزعة:

« تخيَّل موقعًا شهيرًا يستخدمه الكثير من الناس. يقوم المهاجمون بإصدار أوامر لعدد هائل من الأجهزة للوصول إليه في نفس الوقت.

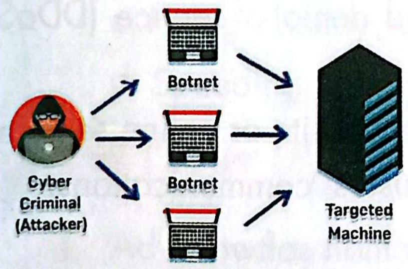
فيصبح الموقع مزدحمًا جدًّا لدرجة أنه لا يستطيع تقديم الخدمات للزوار؛ وبالتالي يتوقف عن العمل.

كيف يعمل؟

« يستخدم المهاجم عدة أجهزة مخترقة تُسمى بوت نت (Botnet).

« ترسل هذه الأجهزة كميات هائلة من الطلبات إلى خادم الموقع.

« يؤدي ذلك إلى إبطاء الموقع أو تعطيله ومنع المستخدمين الشرعيين من الوصول إليه.



أهم الكلمات والمصطلحات			
Cyber threats	التهديدات السيبرانية	Spear phishing	التصيد الاحتيالي الموجه
Vulnerabilities	الثغرات	Pretexting	الادعاء الكاذب
Ransomware	الفدية الإلكترونية	Baiting	الطُعم
Malware	البرمجيات الخبيثة	Fraudulent messages	رسائل احتيالية
Suspicious emails	رسائل مشبوهة	Distributed Denial-of-Service	هجوم حجب الخدمة الموزع
A ransom message	رسالة الفدية	DDoS attack	هجوم حجب الخدمة
Malicious	خبيث / ضار	Compromised devices	أجهزة مخترقة
Infiltrate	يتسلل	Legitimate users	مستخدمون شرعيون
Congested	مزدحم	Entice	يغري
Social engineering	الهندسة الاجتماعية		

CamScanner

Exercises on Lesson 2

1 Choose the correct answer:

1. Ransomware is a type of ....
   a. hardware b. malware c. good software d. password
2. 📖 Which of the following is an example of ransomware?
   a. A program that displays annoying ads.
   b. A program that encrypts your files and demands a ransom to decrypt them.
   c. A program that cleans temporary files from your device.
   d. A program that helps you organize your files.
3. Advanced cyber threats target ....
   a. devices b. users c. systems d. all of them
4. 📖 What is the primary goal of a distributed denial-of-service (DDoS) attack?
   a. Stealing users' data. b. Disabling a website or online service.
   c. Spreading false information. d. Spying on users' communications.
5. .... is considered a hack of minds rather than software.
   a. DDoS attack b. Ransomware
   c. Social engineering d. None of them
6. Ransomware demands .... to unlock files.
   a. passwords b. money c. software d. updates
7. All of the following are ways ransomware can spread, except ....
   a. malicious links b. safe websites
   c. suspicious emails d. untrusted software
8. 📖 Which of the following is considered a social engineering technique?
   a. Using programs to crack passwords.
   b. Tricking people into revealing their information.
   c. Sending viruses via emails.
   d. Exploiting software vulnerabilities.

CS CamScanner

9. A fake email pretending to be from the bank is an example of ....
   a. pretexting b. baiting c. spear phishing d. ransomware

10. In a DDoS attack, attackers use many devices called ....
   a. viruses b. botnets c. passwords d. servers

11. 📖 What are the botnets used in DDoS attacks?
   a. Advanced artificial intelligence programs.
   b. A network of compromised devices that are remotely controlled.
   c. Superfast computers.
   d. A group of secure servers.

12. All of the following are social engineering methods, except ....
   a. baiting b. pretexting c. spear phishing d. ransomware

13. 📖 What does the term security updates mean?
   a. Changing the appearance of the operating system.
   b. Adding new features to the software.
   c. Fixing security vulnerabilities in software and hardware.
   d. Speeding up applications performance.

2 Put (T) or (F):

1. Advanced cyber threats only target devices. ( )
2. 📖 Ransomware permanently damages your device. ( )
3. Spear phishing targets specific people or organizations. ( )
4. 📖 Distributed denial-of-service (DDoS) attacks target only one device. ( )
5. Baiting involves giving free USB drives with malware. ( )
6. 📖 Social engineering relies on exploiting vulnerabilities in technical systems. ( )
7. Updating antivirus software helps prevent ransomware. ( )
8. In a DDoS attack, attackers often use botnets. ( )
9. 📖 Sharing your personal information with anyone you trust online is always safe. ( )
10. Spear phishing uses personal information to seem convincing. ( )

CamScanner

11 DDoS attacks allow legitimate users to access the websites. ( )

12 Sharing your password is the best way to stay safe online. ( )

13 Pretexting, baiting, and spear phishing are social engineering methods. ( )

3 Complete in the blanks:

1 📖 An .... program helps detect and remove malware from your device.

2 📖 Attempts to steal your personal information via fake emails are called ....

3 📖 A .... program encrypts your files and demands a ransom to recover them.

4 📖 A .... attack aims to disable a website or online service by sending massive amounts of requests.

5 📖 The art of tricking people into giving up confidential information is called ....

6 📖 In DDoS attacks, a network of compromised devices is called ....

7 📖 A targeted .... is an advanced type of phishing that targets specific individuals.

8 Social engineering is called a hack of .... instead of hardware or software.

9 In ...., the attacker uses a fake story to trick the victim.

10 Offering a free USB that contains malware is an example of ....

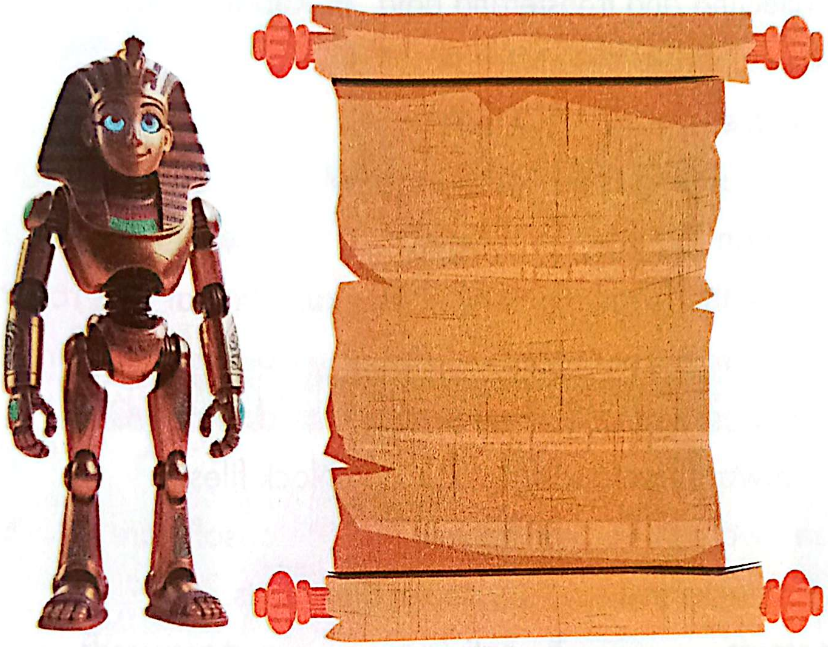
11 .... is an abbreviation of a Distributed Denial-of-Service attack.

12 Baiting, pretexting, and spear phishing are examples of .... methods.

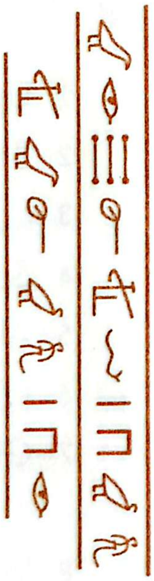
CamScanner

Play with PONY

Help the robot to complete the following sentences:



1. A .... program helps detect and remove malware from your device.
2. A .... program encrypts your files and demands money to recover them.
3. A .... attack aims to disable a website or online service by sending massive amounts of requests.
4. The art of tricking people to give confidential information is called ....
5. In DDoS attacks, a network of compromised devices is called ....
6. .... is an advanced type of phishing that targets specific individuals.



CamScanner

Test Yourself on Lessons 1&2

1 Choose the correct answer:

1. 📖 What is the main role of sensors in IoT?
   a. Sending text messages. b. Manually operating devices.
   c. Collecting and transferring data. d. Repairing networks.
2. Advanced cyber threats target ....
   a. Devices b. Users c. Systems d. All of them
3. Global warming is mainly caused by ....
   a. carbon dioxide b. oxygen c. water vapor d. nitrogen
4. Which of the following is NOT an example that uses robotics?
   a. Vacuum cleaner robot b. Smart farming
   c. Voice assistant d. Smart Car
5. Ransomware demands .... to unlock files.
   a. passwords b. money c. software d. updates
6. DDoS attacks use .... to send requests.
   a. botnets b. antivirus c. passwords d. emails
7. Baiting may involve offering .... to attract the victim.
   a. food b. free malware c. free USB d. music

2 Put (T) or (F):

1. Updating antivirus software helps reduce cyber threats. ( )
2. Smart systems can reduce pollution and protect the environment. ( )
3. 📖 DDoS attacks target only one device. ( )
4. Spear phishing uses personal information to seem convincing. ( )
5. AI in smart systems cannot suggest solutions for car breakdowns. ( )
6. IoT in smart farming measures soil moisture to determine watering. ( )
7. Global warming is caused by a decrease in carbon dioxide emissions. ( )
8. IoT, AI, and robotics together create smart connected systems. ( )

CamScanner

Lesson 3

Big Data

Big Data

» It is a collection of large, complex data that cannot be efficiently processed using traditional technology, such as Excel, to make meaningful use of it.

البيانات الضخمة: هي مجموعة من البيانات الكبيرة والمعقدة التي لا يمكن معالجتها بكفاءة باستخدام التقنيات التقليدية (مثل برنامج Excel) للاستفادة منها بشكل فعَّال.

» Analyzing big data allows analysts, researchers, entrepreneurs to make better and faster decisions.

يتيح تحليل البيانات الضخمة للمحللين والباحثين ورواد الأعمال اتخاذ قرارات أفضل وأسرع.

Sources of Big Data مصادر البيانات الضخمة

1. IoT
2. Social Media
3. Financial Data
4. Data from Smart Devices
5. Digital Content
6. Government Data
7. Geographic and Spatial Data

1 Internet-connected devices (IoT):

» Devices such as smart refrigerators, smart watches, or connected cars continuously generate data.

» They generate data by collecting information about:

1. Location.
2. Temperature.
3. Behavioral patterns.
4. Energy usage.

» Example: A smart watch measures the heart rate, activity level, and temperature, then sends the data to its app.

١- الأجهزة المتصلة بالإنترنت (IoT):

- الأجهزة مثل الثلاجات الذكية والساعات الذكية أو السيارات المتصلة بالإنترنت تُولِّد بيانات بشكل مستمر.
- تقوم بتوليد البيانات من خلال جمع معلومات عن:

❶ الموقع الجغرافي. ❷ درجة الحرارة. ❸ الأنماط السلوكية. ❹ استهلاك الطاقة.

- مثال: تقيس الساعة الذكية معدل ضربات القلب، ومستوى النشاط، ودرجة الحرارة، ثم ترسل البيانات إلى تطبيقها.

CamScanner

2 Social Media:

» Social media generates data from the users' daily activities such as:

1. Posts.
2. Comments.
3. Photos.
4. Videos.
5. Likes.

These sources may be unreliable.

» Example: When someone posts a photo on Instagram or shares an opinion on Facebook, data is generated about: time, location, reactions, hashtags.

• وسائل التواصل الاجتماعي: تُنتج وسائل التواصل الاجتماعي بيانات من أنشطة المستخدمين اليومية مثل:

① المنشورات. ② التعليقات. ③ الصور. ④ مقاطع الفيديو. ⑤ الإعجابات.

قد تكون هذه المصادر غير موثوقة.

• مثال: عندما ينشر شخص صورة على إنستجرام أو يشارك رأيًا على فيسبوك، يتم توليد بيانات حول: الوقت، الموقع، التفاعلات، الوسوم.

3 Financial Data:

» Financial data includes:

1. Electronic payments.
2. Banking transactions.
3. Stock trading.

It collects information about amounts paid, users, locations, and times.

» Example: When someone makes an online purchase using a credit card, data is recorded about the amount, store, and geographic location.

٣- البيانات المالية تتضمن:

① المدفوعات الإلكترونية. ② المعاملات البنكية. ③ تداول الأسهم.

تجمع هذه البيانات معلومات حول: المبالغ المدفوعة، المستخدمين، المواقع، الأوقات.

• مثال: عندما يقوم شخص بعملية شراء عبر الإنترنت باستخدام بطاقة ائتمان، يتم تسجيل بيانات حول: المبلغ، المتجر، الموقع الجغرافي.

4 Data from Smart Devices:

- Devices, like mobile phones, cameras, and smart home devices, generate data about:
  1. Usage.
  2. Location.
  3. Interactions.
- Example: A mobile phone constantly tracks your geographic location and the apps you've used.

٤- البيانات من الأجهزة الذكية: الأجهزة مثل الهواتف المحمولة والكاميرات وأجهزة المنزل الذكية تُنتج بيانات حول:

❶ الاستخدام. ❷ الموقع. ❸ التفاعلات.

• مثال: يقوم الهاتف المحمول بتتبُّع موقعك الجغرافي باستمرار والتطبيقات التي استخدمتها.

5 Digital Content:

- Videos, images, and audio content online generate big data, such as the number of views, interactions, comments, and shares.
- Example: When someone watches a YouTube video, data is collected about the viewing time, video interactions, and comments.

٥- المحتوى الرقمي: مقاطع الفيديو والصور والمحتوى الصوتي عبر الإنترنت تُولِّد بيانات ضخمة مثل: عدد المشاهدات، التفاعلات، التعليقات، المشاركات.

• مثال: عندما يشاهد شخص مقطع فيديو على يوتيوب، يتم جمع بيانات حول: وقت المشاهدة، تفاعلات الفيديو، التعليقات.

6 Government Data:

- Governments generate data through:
  1. Population registers.
  2. Statistics.
  3. Tax data.
  4. Censuses.
- Example: Governmental surveys collect data about populations of an area, income, and expenditures.

٦- البيانات الحكومية: تُولِّد الحكومات البيانات من خلال:

❶ سجلات السكان. ❷ الإحصاءات. ❸ بيانات الضرائب. ❹ التعدادات.

• مثال: تقوم الاستبيانات الحكومية بجمع بيانات حول: عدد السكان في منطقة ما، الدخل، المصروفات.

CS CamScanner

7 Geographic and Spatial Data:

» Satellites and GPS devices collect data about geographic locations, roads, and the environment.

» Example: Mapping applications, like Google Maps, collect data about:

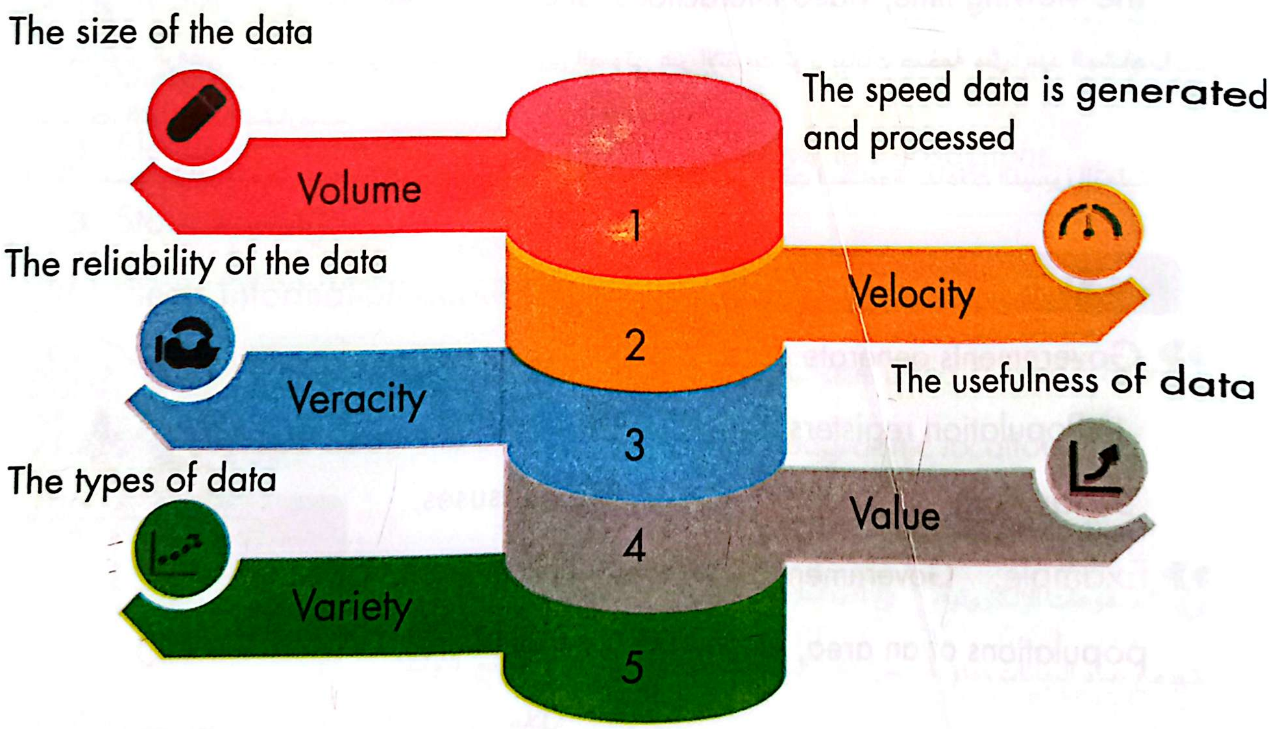
1. Traffic.
2. Vehicles speed.
3. Congested roads.

٧- البيانات الجغرافية والمكانية: تقوم الأقمار الصناعية وأجهزة تحديد المواقع (GPS) بجمع بيانات عن: المواقع الجغرافية، الطرق، البيئة.

• مثال: تطبيقات الخرائط مثل خرائط جوجل (Google Maps) تجمع بيانات حول:

❶ حركة المرور. ❷ سرعة المركبات. ❸ الطرق المزدحمة.

The 5Vs of Big Data
العناصر الخمسة للبيانات الضخمة



1 Volume:

» It refers to the massive amount of data collected and stored from various sources, such as smart devices and social media.

« الحجم: يشير إلى الكمية الهائلة من البيانات التي يتم جمعها وتخزينها من مصادر مختلفة مثل: الأجهزة الذكية ووسائل التواصل الاجتماعي.

2 Velocity:

» It refers to the speed at which data is generated and processed.

» In the internet age, data is generated very quickly, such as:

1. Electronic payments.
2. Social media updates.
3. Data streams from connected devices.

« السرعة: تشير إلى السرعة التي يتم بها توليد البيانات ومعالجتها.

« في عصر الإنترنت، يتم توليد البيانات بسرعة كبيرة مثل:

1. المدفوعات الإلكترونية.
2. تحديثات وسائل التواصل الاجتماعي.
3. تدفقات البيانات من الأجهزة المتصلة.

3 Variety:

» It refers to the variety of data types collected. This includes:

1. Structured data: such as databases.
2. Unstructured data: such as text, images, and videos.

« التنوع: يشير إلى تنوع أنواع البيانات التي يتم جمعها، ويشمل ذلك:

1. البيانات المنظمة (مثل قواعد البيانات).
2. البيانات غير المنظمة (مثل: النصوص، الصور، مقاطع الفيديو).

4 Veracity:

» It refers to the reliability and quality of data.

» Sometimes, data may be inaccurate or contain errors.

« الموثوقية: تشير إلى مدى موثوقية وجودة البيانات، أحيانًا قد تكون البيانات غير دقيقة أو تحتوي على أخطاء.

CamScanner

5 Value:

- It refers to the usefulness of data.
- It is essential to extract and analyze data to deliver actual value to the organization or individual.

« القيمة: تشير إلى مدى فائدة البيانات، من الضروري استخراج البيانات وتحليلها لتقديم قيمة حقيقية للفرد أو المؤسسة.

Types of Big Data

1 Structured Data:

- It's organized in tables with rows and columns, similar to traditional databases.
- Examples: Customer data, financial data, and transaction records.

1 البيانات المنظمة: منظمة في جداول تحتوي على صفوف وأعمدة، مثل قواعد البيانات التقليدية.

- مثال: بيانات العملاء، البيانات المالية، سجلات المعاملات.

2 Unstructured Data:

- It does not come in structured form such as tables or databases.
- This type of data is difficult to analyze using traditional tools.
- Sources: Text, images, videos, and social media posts.
- Example: A Facebook post with text, an image, and a video.

2 البيانات غير المنظمة:

- بيانات لا تأتي في شكل منظم مثل الجداول أو قواعد البيانات.
- هذا النوع من البيانات يصعب تحليله باستخدام الأدوات التقليدية.
- المصادر: النصوص، الصور، مقاطع الفيديو، منشورات وسائل التواصل الاجتماعي.
- مثال: منشور على فيسبوك يحتوي على: نص، صورة، فيديو.

CamScanner

③ Semi-Structured Data:

» A hybrid of structured and unstructured data.

» Example: Emails that contain:

❶ Unstructured data: message body.

❷ Structured data: sender, recipient, subject, and date.

③ البيانات شبه المنظمة: مزيج بين البيانات المنظمة وغير المنظمة.

• مثال: رسائل البريد الإلكتروني التي تحتوي على:

• بيانات غير منظمة (نص الرسالة).

• بيانات منظمة (المرسل، المستلم، الموضوع، التاريخ).

أهم الكلمات والمصطلحات

Traditional technology	التكنولوجيا التقليدية	Population registers	سجلات السكان
Entrepreneurs	رواد الأعمال	Tax data	البيانات الضريبية
Internet-connected devices	الأجهزة المتصلة بالإنترنت	Censuses	التعدادات
Behavioral patterns	أنماط السلوك	Geographic data	البيانات الجغرافية
Financial data	البيانات المالية	Spatial data	البيانات المكانية
Banking transactions	المعاملات المصرفية	Velocity	السرعة
Stock trading	تداول الأسهم	Variety	التنوع
Digital content	المحتوى الرقمي	Government data	البيانات الحكومية
Transaction records	سجلات المعاملات	Structured data	البيانات الهيكلية
Veracity	الموثوقية	Unstructured data	البيانات غير الهيكلية
Expenditures	الإنفاق	Semi-structured data	البيانات شبه الهيكلية

CS CamScanner

Exercises on Lesson 3

1 Choose the correct answer:

1. Big data cannot be processed efficiently using ....
   a. Hadoop b. SQL c. Excel d. none of them
2. A smart watch collecting heart rate is an example of data from ....
   a. IoT devices b. social media
   c. financial systems d. GPS
3. The value in big data means the ....
   a. size b. speed c. usefulness d. variety
4. Electronic payments and stock trading are sources of ....
   a. GPS data b. financial data
   c. digital content d. device data
5. .... in the 5Vs of big data refers to the reliability and quality of the data.
   a. Velocity b. Variety c. Value d. Veracity
6. Population census is an example of ....
   a. social media b. governmental data
   c. GPS d. financial data
7. Data organized in tables is an example of ....
   a. structured data b. unstructured data
   c. semi-structured data d. random data
8. .... in the 5Vs of big data refers to the speed of data.
   a. Variety b. Velocity c. volume d. Value
9. Instagram posts and Facebook comments are examples of data from .... .
   a. government b. social media
   c. IoT d. sensors

CamScanner

10 Government data includes ....

a. censuses b. taxes c. statistics d. all of them

11 A Facebook post containing text, images, and videos is an example of ..... .

a. structured data
b. semi-structured data
c. unstructured data
d. none of them

12 The number of views and comments on a YouTube video is considered ....

a. financial data
b. digital content
c. IoT data
d. government data

13 In the 5Vs of big data, which 'V' refers to the massive amount of data?

a. Velocity b. Variety c. Value d. Volume

14 Email data is an example of .... data.

a. structured
b. semi-structured
c. unstructured
d. none of them

2 Put (T) or (F):

1. Digital content, such as videos, generates big data. ( )
2. Big data can be easily processed using Excel. ( )
3. Big data analysis allows analysts, researchers, and entrepreneurs to make better and faster decisions. ( )
4. All data collected through social media is documented. ( )
5. When you make an online purchase using a credit card, data about the amount, the store, and the geographic location is recorded. ( )
6. Your mobile phone constantly tracks your geographic location and collects data about the places you visit and the apps you use. ( )
7. Videos, images, and audio content uploaded or viewed online do not generate big data. ( )
8. Governments generate data through population registers, statistics, tax data, and censuses. ( )

CamScanner

9 📖 Satellites and GPS devices collect data about geographic locations, roads, and the environment. ( )

10 📖 The characteristics of big data include volume and value. ( )

11 📖 The speed of data generation is not a characteristic of big data. ( )

12 📖 The variety of data types includes structured data (such as databases) and unstructured data (such as text, images, and videos). ( )

13 📖 Veracity refers to the reliability and quality of data. ( )

14 📖 Structured data is data that comes in an unstructured form, such as customer data and financial data. ( )

15 📖 Unstructured data is data that does not come in a structured form, such as tables or databases. ( )

16 📖 Semi-structured data is a hybrid of structured and unstructured data. ( )

17 📖 Emails are a good example of structured data. ( )

3 Complete in the blanks:

1 Big data is a collection of large, ... data that cannot be processed using ....

2 Text, images, and videos are examples of .... data.

3 The 5Vs of big data are ...., ..., ..., ..., and ....

4 .... data is organized in tables, like transaction records.

5 Satellites and GPS devices collect data about .... and ....

6 Emails are .... data, with unstructured text and structured sender / recipient.

Play with PONY

1. Big data can be easily processed using Excel. ✓ ✗

2. Internet-connected devices are a source of big data. ✓ ✗

3. Instagram is a significant source of big data. ✓ ✗

4. Smartphones do not generate big data. ✓ ✗

5. Characteristics of big data include volume and value. ✓ ✗

6. Digital content, such as videos, generates big data. ✓ ✗

7. Veracity refers to the reliability and quality of data. ✓ ✗

8. The speed of data generation is not a characteristic of big data. ✓ ✗

CS CamScanner

Lesson 4

Big Data and Its Relationship to Artificial Intelligence

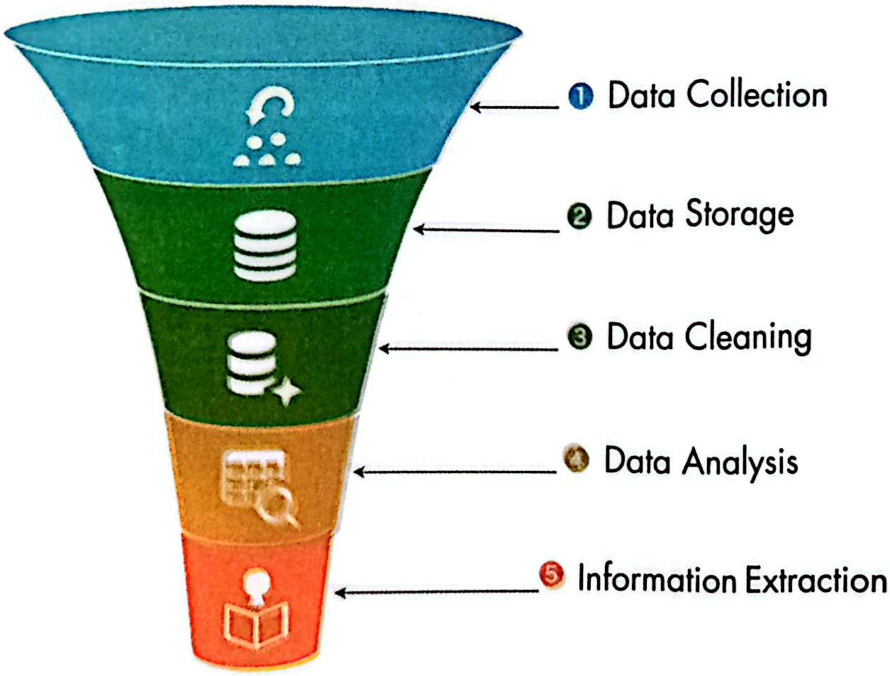
- Big data plays a vital and fundamental role in the development and effectiveness of artificial intelligence (AI).
- AI requires big data to operate and learn.
- AI help process and analyze this massive amount of data and extract value from it.

•تلعب البيانات الضخمة دورًا حيويًا وأساسيًا في تطوير وفعالية الذكاء الاصطناعي (AI).

•يحتاج الذكاء الاصطناعي إلى البيانات الضخمة ليعمل ويتعلم.

•يساعد الذكاء الاصطناعي في معالجة هذا الكم الهائل من البيانات وتحليلها واستخلاص القيمة منها.

The Stages of Big Data Processing
مراحل معالجة البيانات الضخمة



CamScanner

1 Big Data Collection:

» It's the process of collecting massive amounts of data from various sources.

2 Data Storage:

» The collected data is stored in large databases, which can be located on servers or cloud systems.

3 Data Cleaning:

» The collected data may contain errors, duplication, or incorrect data.

» Therefore, data must be cleaned and verified.

4 Data Analysis:

» The data is analyzed using advanced tools and techniques, such as:

1. Artificial intelligence.
2. Machine learning.

5 Information Extraction:

» This is the final stage.

» Valuable information is extracted from the analyzed data to improve operations or make strategic decisions.

❶ جمع البيانات: هي عملية جمع كميات هائلة من البيانات من مصادر مختلفة.

❷ تخزين البيانات: تُخزَّن البيانات المجمعة في قواعد بيانات ضخمة، يمكن أن تكون على خوادم أو أنظمة سحابية.

❸ تنظيف البيانات: قد تحتوي البيانات المجمعة على أخطاء أو تكرار أو بيانات غير صحيحة؛ لذلك يجب تنظيف البيانات والتحقق من صحتها.

❹ تحليل البيانات: يتم تحليل البيانات باستخدام أدوات وتقنيات متقدمة مثل: الذكاء الاصطناعي - التعلم الآلي.

❺ استخراج المعلومات: وهذه هي المرحلة النهائية.

• يتم استخراج المعلومات القيِّمة من البيانات التي تم تحليلها؛ لتحسين العمليات أو اتخاذ قرارات إستراتيجية.

CamScanner

Uses of Big Data استخدامات البيانات الضخمة

1 Artificial Intelligence (AI):

- It is a branch of information systems that creates algorithms that mimic human intelligence methods.
- AI enables computers to perform tasks instead of humans, such as:
  - Pattern recognition
  - Speech and hearing
  - Movement
  - Logical reasoning

❶ الذكاء الاصطناعي: هو فرع من نظم المعلومات يقوم بإنشاء خوارزميات تُحاكي طرق الذكاء البشري.

يُمكّن الذكاء الاصطناعي الحواسيب من أداء مهام بدلًا من الإنسان مثل: التعرُّف على الأنماط، الكلام والسمع، الحركة، الاستدلال المنطقي.

2 Machine Learning and Deep Learning:

- Big data trains models to improve their performance over time.
- The greater the quality, volume, and variety of data available, the greater the ability of these models to learn and make accurate predictions and decisions.
- Example: Machine learning is used to predict future events, such as weather.

❷ التعلم الآلي والتعلم العميق:

- تُستخدم البيانات الضخمة لتدريب النماذج وتحسين أدائها مع مرور الوقت.
- كلما زادت جودة وحجم وتنوع البيانات المتاحة، زادت قدرة هذه النماذج على التعلم واتخاذ قرارات وتنبؤات دقيقة. مثال: يُستخدم التعلم الآلي للتنبؤ بالأحداث المستقبلية مثل حالة الطقس.

3 Network Monitoring and Cybersecurity:

- Big data is used to monitor network traffic and analyze patterns to detect security threats and prevent attacks.

❸ مراقبة الشبكات والأمن السيبراني: تُستخدم البيانات الضخمة لمراقبة حركة مرور الشبكات وتحليل الأنماط لاكتشاف التهديدات الأمنية ومنع الهجمات.

4 E-commerce: E-commerce platforms use big data to:

- Understand customer behavior.
- Improve recommendations.
- Adjust prices.
- Increase sales using advanced analytics.

التجارة الإلكترونية: تُستخدم البيانات الضخمة في: فهم سلوك العملاء، تحسين التوصيات، تعديل الأسعار، زيادة المبيعات باستخدام التحليلات المتقدمة.

CamScanner

The Role of Big Data in Artificial Intelligence
دور البيانات الضخمة في الذكاء الاصطناعي

A Improving Accuracy and Performance:

- Big data trains models on a wide range of scenarios and conditions.
- Thus, it improves its generalization ability and reduces overfitting problem.
- Therefore, it leads to increasing their accuracy and effectiveness.

أ تحسين الدقة والأداء:

- تقوم البيانات الضخمة بتدريب النماذج على مجموعة واسعة من السيناريوهات والظروف.
- وبالتالي تُحسِّن من قدرتها على التعميم وتُقلِّل من مشكلة الإفراط في التخصيص.
- لذلك، يؤدي ذلك إلى زيادة دقتها وفعاليتها.

B Enabling Advanced AI Applications:

1 Natural Language Processing (NLP)

- NLP models, like GPT, require processing very large text datasets to learn to understand and generate human language accurately.

ب تمكين تطبيقات الذكاء الاصطناعي المتقدمة:

1 معالجة اللغة الطبيعية (NLP): تحتاج نماذج معالجة اللغة الطبيعية مثل (GPT) إلى معالجة مجموعات ضخمة من النصوص؛ لتتعلم فهم اللغة البشرية وتوليدها بدقة.

2 Computer Vision:

- Computer vision applications include face recognition and object detection.
- They are trained on massive datasets of images and videos.

2 الرؤية الحاسوبية:

- تشمل تطبيقات الرؤية الحاسوبية مثل: التعرف على الوجوه، واكتشاف الأجسام.
- يتم تدريبها على مجموعات هائلة من الصور والفيديوهات.

3 Predictive Analytics:

- AI analyzes massive amounts of historical data to identify patterns and trends, enabling accurate predictions about future events, such as customer behavior and market trends.

3 التحليلات التنبؤية:

- يقوم الذكاء الاصطناعي بتحليل كميات ضخمة من البيانات التاريخية لاكتشاف الأنماط والاتجاهات؛ مما يُمكِّنه من التنبؤ الدقيق بالأحداث المستقبلية مثل: سلوك العملاء، واتجاهات الأسواق.

CamScanner

4 Discovering Hidden Insights and Patterns:

- AI processes and analyzes big data to discover valuable insights and hidden patterns that traditional tools cannot detect, leading to innovative decisions.
- Example: In healthcare, big data from medical records can be analyzed to identify patterns that help diagnose diseases and develop treatment plans.

4 اكتشاف الرؤى والأنماط الخفية:

- يقوم الذكاء الاصطناعي بمعالجة البيانات الضخمة وتحليلها لاكتشاف رؤى وأنماط خفية لا تستطيع الأدوات التقليدية كشفها؛ مما يؤدي إلى قرارات مبتكرة.
- مثال: في الرعاية الصحية يمكن تحليل البيانات الضخمة من السجلات الطبية لاكتشاف أنماط تساعد في تشخيص الأمراض وتطوير خُطط العلاج.

5 Continuous Learning and Adaptation:

- Real-time data streams allow AI models to continuously learn and adapt to new data, improving their performance over time.

5 التعلُّم المستمر والتكيُّف:

- تسمح تدفقات البيانات في الوقت الحقيقي لنماذج الذكاء الاصطناعي بالتعلم المستمر والتكيُّف مع البيانات الجديدة؛ مما يُحسِّن من أدائها مع مرور الوقت.

6 Improving User Experience and Automating Tasks:

- AI uses big data to understand customer interactions with products and services and provide personalized recommendations and content.
- Big data helps machine learning automate tasks in areas such as customer service, logistics, finance by recognizing patterns and making decisions without human intervention.

6 تحسين تجربة المستخدم وأتمتة المهام:

- يستخدم الذكاء الاصطناعي البيانات الضخمة لفهم تفاعل العملاء مع المنتجات والخدمات وتقديم توصيات ومحتوى شخصي لهم.
- تساعد البيانات الضخمة تقنيات التعلُّم الآلي على أتمتة المهام في مجالات مثل: خدمة العملاء، سلاسل الإمداد، التمويل، من خلال التعرُّف على الأنماط واتخاذ القرارات دون تدخل بشري.

CamScanner

NOTES:

- Big data is the raw material that feeds AI.
- Without it, AI would be nothing more than a set of theoretical algorithms incapable of learning or delivering real value.
- In contrast, AI helps transform this raw data into strategic information that helps inform decisions and gain a competitive advantage.

- البيانات الضخمة هي المادة الخام التي تُغذِّي الذكاء الاصطناعي.
- وبدونها، سيكون الذكاء الاصطناعي مجرد مجموعة من الخوارزميات النظرية غير القادرة على التعلُّم أو تقديم قيمة حقيقية.
- وعلى العكس، يساعد الذكاء الاصطناعي في تحويل هذه البيانات الخام إلى معلومات إستراتيجية تُسهم في اتخاذ القرارات والحصول على ميزة تنافسية.

أهم الكلمات والمصطلحات

Big data processing	معالجة البيانات الضخمة	Natural Language Processing	معالجة اللغة الطبيعية
Data storage	تخزين البيانات	Computer vision	الرؤية الحاسوبية
Cloud systems	أنظمة السحابة	Face recognition	التعرف على الوجه
Data cleaning	تنقية البيانات	Object detection	اكتشاف الأشياء
Information extraction	استخراج المعلومات	Predictive analytics	التحليلات التنبؤية
Machine learning	التعلم الآلي	Hidden insights	الرؤى الخفية
Deep learning	التعلم العميق	Medical records	السجلات الطبية
Pattern recognition	التعرف على الأنماط	Personalized treatment	علاج شخصي
Logical reasoning	التفكير المنطقي	Real-time data	البيانات الفورية
Network monitoring	مراقبة الشبكات	User experience	تجربة المستخدم
Cybersecurity	الأمن السيبراني	Automating tasks	أتمتة المهام
Customer behavior	سلوك العملاء	Customer service	خدمة العملاء
Strategic decisions	القرارات الإستراتيجية	Logistics	الخدمات اللوجستية
Accuracy and performance	الدقة والأداء	Competitive advantage	الميزة التنافسية
Overfitting problem	مشكلة فرط التخصيص		

CamScanner

Exercises on Lesson 4

1 Choose the correct answer:

1. Data .... is the first stage of big data processing.
   a. storage b. collection c. cleaning d. analysis
2. Which of the following creates algorithms that mimic human intelligence?
   a. AI b. Physics c. Biology d. History
3. Removing errors and duplication is called data ....
   a. storage b. analysis c. cleaning d. extraction
4. In big data processing, ... comes next after data analysis.
   a. data collection b. data cleaning
   c. information extraction d. data storage
5. big data storage usually happens in ....
   a. clouds b. servers c. USB d. a or b
6. .... creates algorithms that mimic human intelligence.
   a. AI b. IoT
   c. E-commerce d. None of them
7. Predicting future weather using big data is an example of ....
   a. cybersecurity b. machine learning
   c. NLP d. cleaning
8. .... platforms use big data to adjust prices and improve sales.
   a. E-commerce b. AI
   c. Cybersecurity d. None of them
9. A machine learning model trained on more data will usually ....
   a. learn slower b. be less accurate
   c. be more accurate d. forget patterns
10. NLP applications require processing ....
    a. images b. text datasets
    c. maps d. audio only
11. Big data improves AI by reducing the ....
    a. cost b. collection c. storage d. overfitting

12 Predicting customer behavior with AI is called ....

a. cleaning
b. extraction
c. predictive analytics
d. storage

13 Which best describes the relationship between big data and AI?

a. AI creates raw data.
b. Big data depends on AI fully.
c. Big data feeds AI, and AI extracts value.
d. They are unrelated.

2 Put (T) or (F):

1. Big data has no role in the development and effectiveness of artificial intelligence. ( )
2. AI technologies help in processing and analyzing big data. ( )
3. One of the stages of big data processing is data cleaning. ( )
4. The data collection stage is the process of collecting large amounts of data from various sources. ( )
5. The process of processing big data does not require storing that data. ( )
6. Data cleaning means dealing with errors, duplication, or incorrect data. ( )
7. Data analysis occurs using advanced tools and techniques, such as artificial intelligence. ( )
8. Information extraction takes place before data analysis. ( )
9. E-commerce platforms rely on big data to understand the customer behavior. ( )
10. Big data does not allow models to be trained on a wide range of scenarios and conditions. ( )
11. Computer vision applications, such as face recognition and object detection, do not require massive datasets of images and videos to train their models. ( )
12. The role of big data in AI is to improve accuracy and performance and enable AI applications. ( )

13. 📖 Advanced AI applications include predictive analytics and computer vision. ( )
14. 📖 AI does not use big data to understand customer interactions with products and services. ( )
15. 📖 Big data helps machine learning algorithms recognize patterns and make decisions without human interference. ( )
16. 📖 Big data improves task automation in areas such as customer service, logistics, and finance. ( )
17. 📖 Big data is not the raw material that feeds artificial intelligence. ( )
18. 📖 AI is just a set of theoretical algorithms that are incapable of learning or delivering real value without big data. ( )

3 Complete in the blanks:

1. AI requires .... to operate and learn.
2. The first stage of big data processing is ....
3. Data cleaning deals with ...., ..., or incorrect data.
4. Big data helps monitor networks and cybersecurity to detect security ....
5. Once collected, data is .... in large databases.
6. .... platforms rely on big data to understand customer behavior.
7. Big data enables models to be trained on a wide range of .... and conditions.
8. .... models, such as ...., require processing very large text datasets.
9. Computer vision relies on massive datasets of .... and .... to train models.
10. Information extraction takes place after ....
11. Predictive analytics uses .... to make accurate predictions.
12. .... can discover valuable insights and hidden patterns from big data.

Play with PONY

Help the robot to arrange the stages of big data processing.

Test Yourself on Lessons 3&4

1 Choose the correct answer:

1. Big data is stored in ....
   a. clouds b. servers c. databases d. all of them
2. Email data is an example of .... data.
   a. structured b. semi-structured
   c. unstructured d. none of them
3. .... creates algorithms that mimic human intelligence.
   a. AI b. IoT c. E-commerce d. None of them
4. Predicting customer behavior with AI is called ....
   a. cleaning b. extraction
   c. predictive analytics d. storage
5. In the 5Vs of big data, which 'V' refers to the massive amount of data?
   a. Velocity b. Variety c. Value d. Volume
6. Continuous learning uses .... data streams.
   a. random b. real-time c. Stored d. Small
7. Electronic payments and stock trading are sources of ....
   a. GPS data b. financial data
   c. digital content d. device data

2 Put (T) or (F):

1. 🕮 Machine learning and deep learning do not require big data. ( )
2. 🕮 All data collected through social media is documented. ( )
3. 🕮 Veracity refers to the reliability and quality of data. ( )
4. 🕮 Data cleaning means dealing with errors, duplication, or incorrect data. ( )
5. 🕮 Internet-connected devices are a source of big data. ( )
6. 🕮 Smartphones do not generate big data. ( )
7. 🕮 One of the stages of big data processing is data cleaning. ( )
8. 🕮 Financial data is not considered big data. ( )

CamScanner

October Exam
on Lessons (1 – 4)

1 Choose the correct answer:

1. .... data is the first stage of big data processing.
   a. Storing b. Collecting c. Cleaning d. Analyzing
2. Traffic data collected by Google Maps is ....
   a. financial data b. governmental data c. spatial data d. digital content
3. A distributed denial-of-service (DDoS) attack targets ....
   a. websites b. books c. teachers d. banks only
4. In a voice assistant, which part is missing?
   a. IoT b. AI c. Robotics d. None
5. Machine learning uses big data to .... models.
   a. store b. train c. clean d. collect

2 Put (T) or (F):

1. In a smart home, AI can turn on the AC before you arrive. ( )
2. DDoS attacks allow legitimate users to access websites. ( )
3. 📖 Veracity refers to the reliability and quality of data. ( )
4. In agriculture, IoT sensors check soil moisture. ( )
5. Processing big data does not require storing that data. ( )

3 Complete:

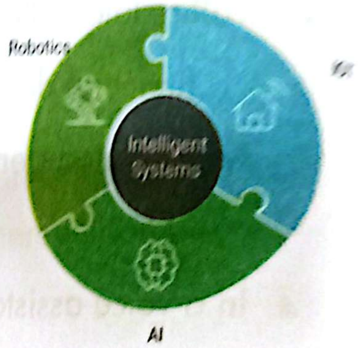
1. Big data monitors networks to detect cyber ....
2. Emails are an example of .... data.
3. .... is a short of a Distributed Denial-of-Service attack.
4. .... programs help detect and remove malware.
5. In smart farming, ... measure the soil moisture.

CamScanner

Summary of Unit 1

Lesson 1 Intelligent Systems and Their Impact on Climate Change

1 Interconnected Intelligent Systems: It combines three important technologies



1. IoT: connects devices to the internet.
2. AI: analyzes information and makes decisions like humans.
3. Robotics: devices that move and perform tasks.

2 Example on Smart Car Breakdown:

1. IoT: sends location and problem data to a service center.
2. AI: analyzes the cause and suggests solutions.
3. Robotics: repairs the car or requests a transport vehicle.

3 Practical Applications in Daily Life:

- Smart Home: IoT controls devices, AI predicts needs, robots clean and assist.
- School Robot: IoT connects to resources, AI answers questions, robot communicates.
- Smart Farming: IoT monitors soil, AI analyzes, robots irrigate or spray pesticides.
- Voice Assistant: IoT accesses info, AI understands speech.
- Smart Car: IoT connects to maps, AI monitors hazards, robots control movement.

4 Impact on Climate Change:

Global Warming: IoT measures pollution, AI suggests solutions, robots plant trees/purify air.

Air Pollution: IoT monitors gases, AI identifies areas, robots use air purifiers.

Water Shortage/Drought: IoT measures soil, AI calculates water, robots irrigate efficiently.

Floods: IoT measures rainfall, AI sends warnings, robots assist in rescue.

Melting Ice: IoT monitors melting, AI predicts risks, robots collect data and support prevention.

Lesson 2 Advanced Cyber Threats

- These are not simple viruses, but planned attacks that exploit system vulnerabilities or user behavior.

1 Ransomware:

- A type of malware that encrypts files or locks devices and demands ransom money to restore access.
- It spread through suspicious emails, malicious links, fake websites, or untrusted downloads.

2 Advanced Social Engineering:

- Not a hack of systems, but a hack of minds
- It Tricks people into giving confidential information.

Spear Phishing: Personalized fake emails or messages targeting specific individuals or organizations

Pretexting: Attacker creates a fake story (e.g., pretending to be bank staff or technical support).

Baiting: Offering something attractive (like a free USB drive with malware).

CamScanner

3 Distributed Denial of Service (DDoS) Attacks:

- Attackers use many botnets (infected devices) to access a website at the same time.
- The website becomes slows down or disabled.
- This prevents legitimate (real) users from accessing it.

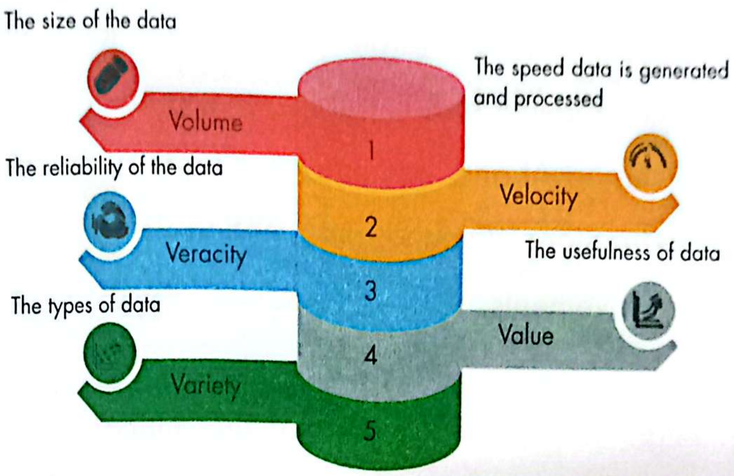
Lesson 3 Big Data

- Large and complex data that cannot be processed efficiently using traditional tools (like Excel).
- Sources of Big Data:

1. **Internet-connected devices (IoT):** Smart watches, refrigerators, cars collect usage, location, and activity data.
2. **Social Media:** Posts, comments, photos, videos, likes generate massive data (sometimes unreliable).
3. **Financial Data:** Payments, transactions, and stock trading record amounts, users, times, and locations.

4. **Smart Devices:** Phones, cameras, and smart home devices track location, apps, and interactions.
5. **Digital Content:** Videos, images, and audio generate data from views, comments, and shares.
6. **Government Data:** Population registers, censuses, taxes, surveys.
7. **Geographic and Spatial Data:** Satellites and GPS provide maps, traffic, and environmental data.

The 5Vs of Big Data:



Types of Big Data:

Structured Data: Organized in tables with rows and columns. (e.g., customer data, transactions).

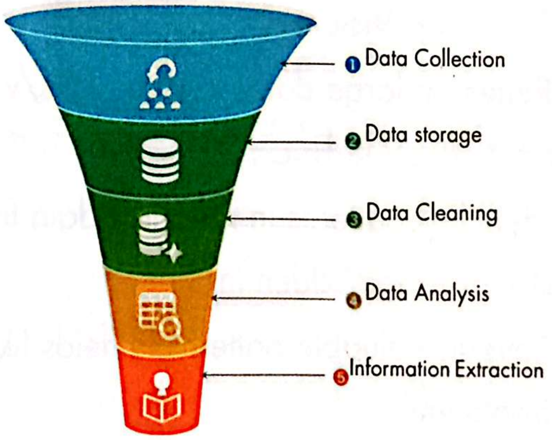
Unstructured Data: No clear structure; includes text, images, videos, social media posts.

Semi-Structured Data: A mix of both; such as emails (**structured** parts like sender, recipient / **unstructured** like message body).

Lesson 4 Big Data and Its Relationship to Artificial Intelligence

- Big Data is essential for AI to operate and learn.
- AI also helps process and analyze Big Data to extract value and insights.

Stages of Big Data Processing:



Summary of Unit 1

1. Data Collection: collecting massive data from multiple sources.
2. Data Storage: Saving data in large databases or cloud systems.
3. Data Cleaning: Removing errors, duplication, and incorrect data.
4. Data Analysis: Using AI and machine learning to analyze data.
5. Information Extraction: Valuable information is extracted from the analyzed d improvements.

Uses of Big Data:

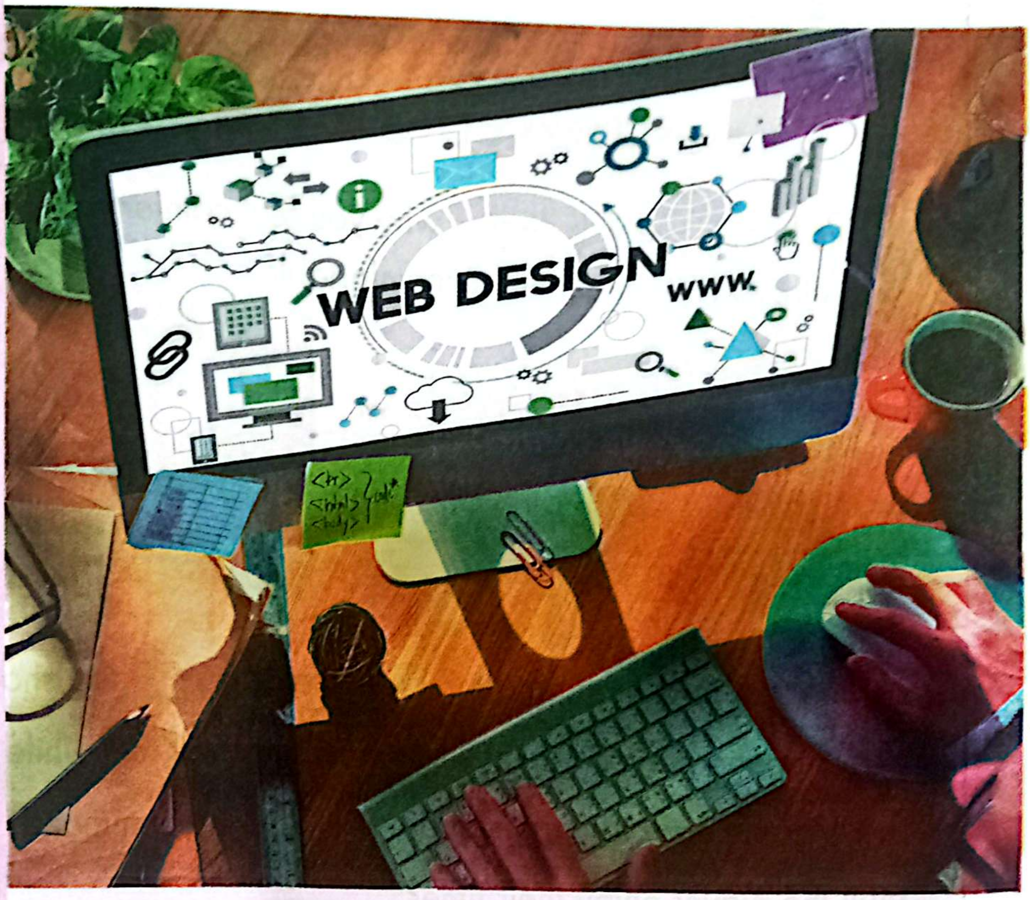
1. Artificial Intelligence: Designing algorithms that mimic human intelligence (speech, vision, reasoning).
2. Machine Learning & Deep Learning: Training models to improve predictions (e.g., weather forecasting).
3. Network Monitoring & Cybersecurity: Detecting threats by analyzing network traffic patterns.
4. E-commerce: Big data is used for Understanding customer behavior, improving recommendations, adjusting prices, and boosting sales.

The Role of Big Data in AI:

1. Improving Accuracy & Performance:
   Training on diverse data improves generalization and reduces errors.
2. Enabling Advanced AI Applications:
   - Natural Language Processing (NLP): Requires massive text datasets for accurate language understanding (Such as GPT)
   - Computer Vision:
     Relies on large datasets of images/videos for recognition tasks.
   - Predictive Analytics:
     Identifies patterns in historical data for future predictions.
   - Discovering Hidden Insights:
     Reveals valuable patterns in fields like healthcare for diagnosis and treatment.

Unit 2

Website Design and Creation



Unit Lessons:

Lesson 1 Principles of Designing Professional and Attractive Website Interfaces

Lesson 2 Web Page Format

Lesson 3 My Digital Project for My School

Lesson 4 Creating Your Website with the Help of Artificial Intelligence

CS CamScanner

Lesson 1

Principles of Designing Professional and Attractive Website Interfaces

» In this lesson, we will discuss why you feel comfortable using some websites, while others feel uncomfortable.

UX vs. UI

The Concept of User Experience (UX) Design

» Imagine you're designing a new website or game. You should consider every step the player will take and how they will feel while playing.

- Is the game easy to understand?
- Are the commands clear?
- Will the player enjoy their time?

» This is what we call User Experience (UX) Design.

« تخيَّل أنك تقوم بتصميم موقع جديد أو لعبة جديدة. يجب أن تراعي كل خطوة سيتخذها اللاعب وكيف سيشعر أثناء اللعب.

- هل اللعبة سهلة الفهم؟
- هل الأوامر واضحة؟
- هل سيستمتع اللاعب بوقته؟

« هذا ما نُسميه تصميم تجربة المستخدم (UX Design).

User Experience (UX)

» It's considering how people use the application or website.

» Can they easily find what they need?

» Do they feel happy while using it?

تجربة المستخدم: هي الاهتمام بكيفية استخدام الأشخاص للتطبيق أو الموقع.

- هل يمكنهم العثور بسهولة على ما يحتاجون إليه؟
- هل يشعرون بالسعادة أثناء استخدامه؟

Example: » If the books in a library are arranged in an organized manner, it will be easy and convenient to get them.

» If books are scattered randomly, it will be frustrating.

« مثال: • إذا كانت الكتب في مكتبة مرتبة بطريقة منظمة، فسيكون العثور عليها سهلًا ومريحًا.

• أما إذا كانت الكتب مبعثرة بشكل عشوائي، فسيكون الأمر مُحبطًا.

CS CamScanner

The books are thrown randomly	The books are arranged

1 The Importance of User Experience (UX) Design:

- If an app or website is easy to use, the user will feel satisfied and will return to it.
- If it's difficult, they may abandon it forever.

أهمية تصميم تجربة المستخدم (UX Design):

- إذا كان التطبيق أو الموقع سهلًا في الاستخدام، سيشعر المستخدم بالرضا وسيعود لاستخدامه مرة أخرى.
- أما إذا كان صعبًا، فقد يتخلى عنه إلى الأبد.

2 Basic Principles to Consider in UX Design:

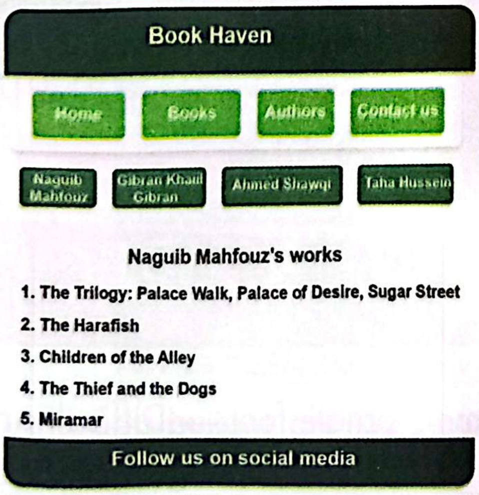
المبادئ الأساسية التي يجب مراعاتها في تصميم تجربة المستخدم:

1 Ease of Navigation:

- It means that the user can quickly and effortlessly find what they are looking for.

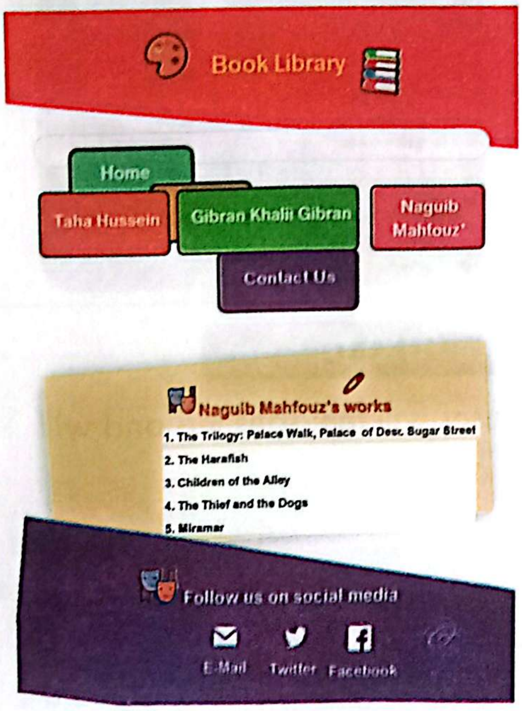
1 سهولة التنقُّل: تعني أن يتمكن المستخدم من العثور بسرعة وسهولة على ما يبحث عنه.

Good UX Design



- A main menu with clear buttons such as Home, Books, and Contacts.
- This menu is easy to navigate because the options are clear and organized.

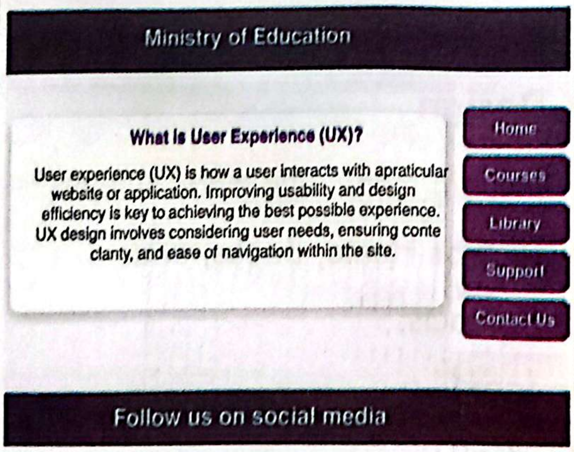
Bad UX Design



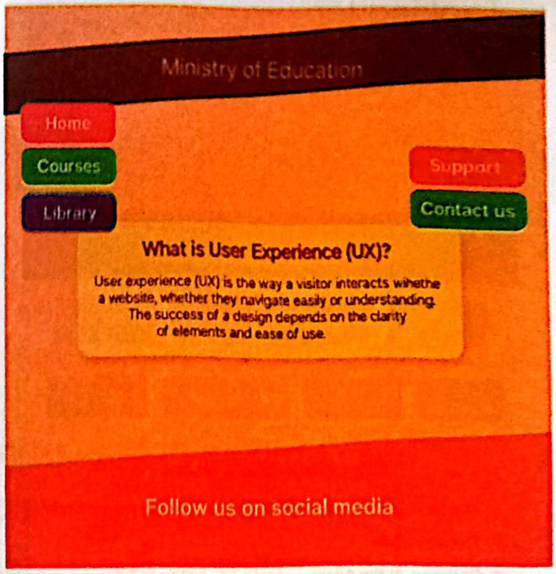
- A nested menu with many sub-items. This menu is disorganized and confusing because the options are too many and unclear.

2 Clarity: It is the presentation of information in a way that is easy to understand.

❷ الوضوح: يعني عرض المعلومات بطريقة سهلة الفهم.



Large, clear text → Easy to read

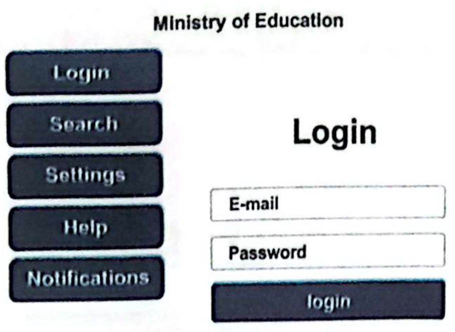
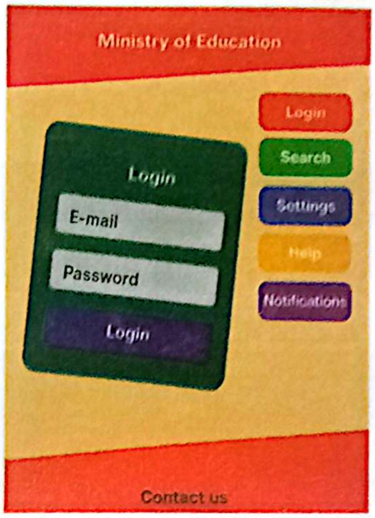


Small, ornate font → Difficult and frustrating

3 Consistency:

» It means keeping the same style throughout the website or app.

③ الاتساق: يعني الحفاظ على نفس النمط في جميع أنحاء الموقع أو التطبيق.

	
Buttons with the same shape and color → Familiar to users	Buttons with different shapes and colors → Confusing

The Concept of User Experience (UX) Design

1 What is the User Interface (UI) Design?

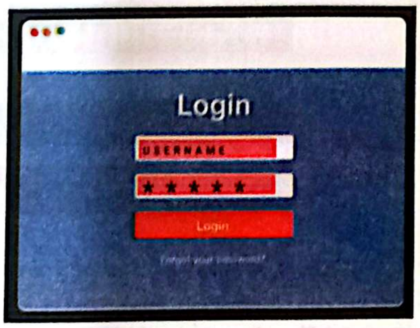
» It's the way a website, app, or game appears.

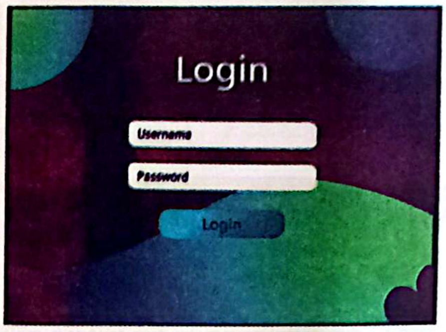
» It includes elements such as colors, buttons, and fonts that the user sees and interacts with in an attractive, organized, and easy-to-understand manner.

ما هو تصميم واجهة المستخدم (UI)؟

- هو الطريقة التي يظهر بها الموقع أو التطبيق أو اللعبة.
- ويشمل عناصر مثل الألوان والأزرار والخطوط التي يراها المستخدم ويتفاعل معها بطريقة جذّابة ومنظمة وسهلة الفهم.

Example:





» If the app buttons are too small to be easily pressed, this indicates a UI design problem.

2 The Importance of UI:

أهمية واجهة المستخدم (UI):

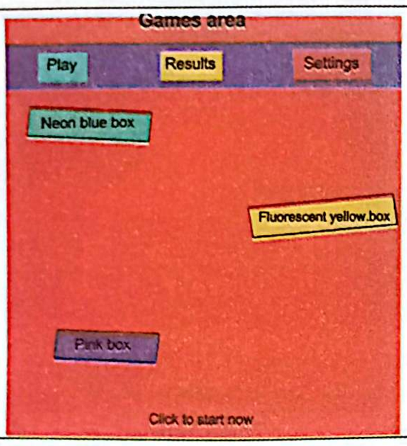
- A beautiful interface creates a good first impression.
- An ugly interface design makes users dislike it.

- الواجهة الجميلة تترك انطباعًا أوليًّا جيدًا.
- أما الواجهة ذات التصميم غير الجذَّاب، فتجعل المستخدمين ينفرون منها.

3 Basic Principles of UI Design:

1 Colors: Choosing the right colors affects the user's mood.

الألوان: اختيار الألوان المناسبة يؤثر على مزاج المستخدم.

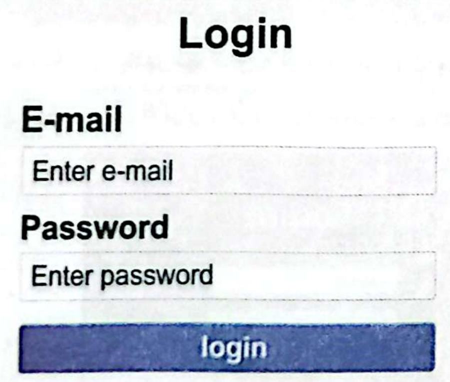


- Bright colors (red, yellow, and purple): They are annoying and distracting.

- Harmonious colors (blue and gray): They are calm and relaxing.

2 Fonts: Interface fonts should be legible and appropriate to the context.

الخطوط: يجب أن تكون خطوط الواجهة واضحة وسهلة القراءة وملائمة للسياق.



- Simple and clear font: This font is easy to read and looks formal.

- A complex and decorative font: It is difficult to read and not suitable for practical applications.

3 Layout: Organizing interface elements in a logical manner makes apps or website easy to use.

التخطيط: إن تنظيم عناصر الواجهة بطريقة منطقية يجعل التطبيقات أو المواقع سهلة الاستخدام.

- A page divided into clear sections such as (Home, News, and Articles): This page is organized and easy to navigate.

- A page full of cluttered elements: It's crowded and causes headaches.

Comparison between UX and UI

Aspect	User Experience (UX)	User Interface (UI)
Definition	It is the design that makes using the website or application easy and convenient.	It is the design that makes the application beautiful and attractive.
Example: When you enter a restaurant:	The quality of the food and service provided.	The décor, colors, and interface that attract your attention.

Example of Good Websites:

- Google: Simple, fast, easy to use website.
- YouTube: Attractive and easy to navigate website.

أهم الكلمات والمصطلحات			
User Experience (UX)	تجربة المستخدم (UX)	Harmonious colors	ألوان متناغمة
User Interface (UI)	واجهة المستخدم (UI)	Cluttered page	صفحة مزدحمة
Ease of navigation	سهولة التنقل	Legible fonts	خطوط مقروءة
Clear buttons	أزرار واضحة	Logical layout	تخطيط منطقي
Nested menu	قائمة متداخلة	First impression	الانطباع الأول
Interface clarity	وضوح الواجهة	Intuitive design	تصميم بديهي
Consistent style	أسلوب متسق	Organized sections	أقسام منظمة
Visual appeal	الجاذبية البصرية		

CS CamScanner

Exercises on Lesson 1

1 Choose the correct answer:

1. 📖 What is the primary focus of User Experience (UX) design?
   a. The visual appeal of the design.
   b. The website's loading speed.
   c. The colors and fonts used in the design.
   d. The usability and effectiveness of the product.

2. 📖 What is the primary focus of User Interface (UI) design?
   a. Ease of navigation within the application.
   b. User satisfaction with the product.
   c. The visual appeal of the product.
   d. The logical organization of information.

3. If an app or website is easy to use, it leads to user ....
   a. Frustration b. Confusion c. Satisfaction d. Abandonment

4. 📖 Which of the following is a fundamental principle of User Experience (UX) design?
   a. Using decorative fonts to attract attention.
   b. Providing clear and easy navigation for the user.
   c. Using as many colors as possible.
   d. Placing as much information on a single page as possible.

5. Presenting information in an easy-to-understand way refers to interface ....
   a. consistency b. navigation c. clarity d. responsiveness

6. Which of the following is a fundamental principle of User Interface (UI) design?
   a. Making all buttons the same size and shape.
   b. Choosing colors that are consistent and pleasing to the eye.
   c. Providing multiple ways to accomplish the same task.
   d. Ensure that all text is unreadable.

7. What does the principle of "consistency" mean in UX/UI design?
   a. Using different elements on each page to make it stand out.
   b. Maintaining a consistent style for elements throughout the product.
   c. Changing the website design frequently to keep users interested.
   d. Using random fonts and colors.

8. Why is usability important in UX design?
   a. To make the design look more professional.
   b. To increase user satisfaction and interaction with the product.
   c. To reduce the cost of product development.
   d. To make the product run faster.

9. A main menu with clear buttons is an example of good ....
   a. navigation design
   b. confusing navigation
   c. unorganized items
   d. inconsistent colors

10. Why is visual appeal important in UI design?
   a. To make the product easy to use.
   b. To leave a good first impression with the user.
   c. To better organize information.
   d. To make the product compatible with all devices.

CamScanner

11 Interface fonts should be ....

a. complex and decorative
b. small and ornate
c. legible and appropriate to context
d. difficult to read

12 Which of the following examples illustrates a confusing navigation design?

a. A main menu with clear buttons.
b. A search bar in a prominent location.
c. A list of overlapping, unorganized items.
d. Clear links at the end of the page.

13 The design that makes using a website easy and convenient is ....

a. User Experience (UX)
b. User Interface (UI)
c. Web page format
d. digital project

14 Which of the following examples illustrates the use of inconsistent colors in UI design?

a. Using simple color gradients.
b. Using many bright, different colors randomly.
c. Using complementary colors from the color wheel.
d. Using white as the primary color with a muted secondary color.

2 Put (T) or (F):

1 User Experience (UX) design focuses primarily on the appearance of the product, not how it is used. ( )

2 User Interface (UI) design is concerned with making the product easy to use and effective. ( )

CamScanner

3 📖 One of the principles of UX design is to provide clear and easy navigation for the user. ( )

4 📖 Using decorative fonts extensively improves the legibility of text in UI design. ( )

5 📖 Consistency in design means using the same style for elements throughout the product. ( )

6 📖 Ease of use does not affect user satisfaction with the digital product. ( )

7 📖 The visual appeal of the UI can affect the user's first impression. ( )

8 📖 A main menu with clear buttons is an example of a good navigation design. ( )

9 📖 Using many different colors improves the aesthetics of the design. ( )

10 User Experience (UX) is a design process aimed at making a digital product easy, useful, and enjoyable to use for the user. ( )

11 User Interface (UI) is the process of designing the visual elements of an application or website in an attractive, organized, and easy-to-understand manner. ( )

12 Clashing colors can make your site easy to read and visually distracting. ( )

13 A principle in UX design refers to the importance of helping the user easily find what they are looking for within a product. ( )

14 A principle in UI design refers to the importance of choosing harmonious and pleasing colors. ( )

15 If the app buttons are too small to be easily pressed, this indicates a UX design problem. ( )

CamScanner

3 Complete the following sentences:

1. 📖 User Experience (UX) design primarily focuses on making a produc ……………………… .
2. 📖 User Interface (UI) design primarily focuses on making a produc ……………………… and attractive.
3. 📖 A fundamental principle of UX design is providing a clear ………….. for the user to navigate between pages.
4. 📖 When choosing a ……………………… for a user interface, it should be pleasing to the eye and easy to read.
5. 📖 Maintaining ……………………… in the design of elements, such as buttons and icons, creates a sense of professionalism and consistency.

4 Write the scientific term:

1. 📖 It is a design process aimed at making a digital product easy, useful, and enjoyable to use for the user. (………………………)
2. 📖 It is the process of designing the visual elements of an application or website in an attractive, organized, and easy-to-understand manner. (………………………)
3. 📖 It is a principle in UX design that refers to the importance of helping the user to easily find what they are looking for within a product. (………………………)
4. 📖 It is a principle in UI design that refers to the importance of choosing harmonious and pleasing colors. (………………………)
5. It refers to how easy and effective a product is to use. It increases user satisfaction and interaction. (………………………)

Play with PONY

UX OR UI

Interface consistency means maintaining the same style throughout the application or website.

....

The design that makes using the website or application easy and convenient.

....

Large, clear, and easy-to-read text.

....

Interface clarity is the presentation of information in a way that is easy to understand.

....

The design that makes the application beautiful and attractive.

....

Choosing the right colors affects the user's mood.

....

Interface fonts should be legible and appropriate to the context.

....

It's considering how people use the application or website

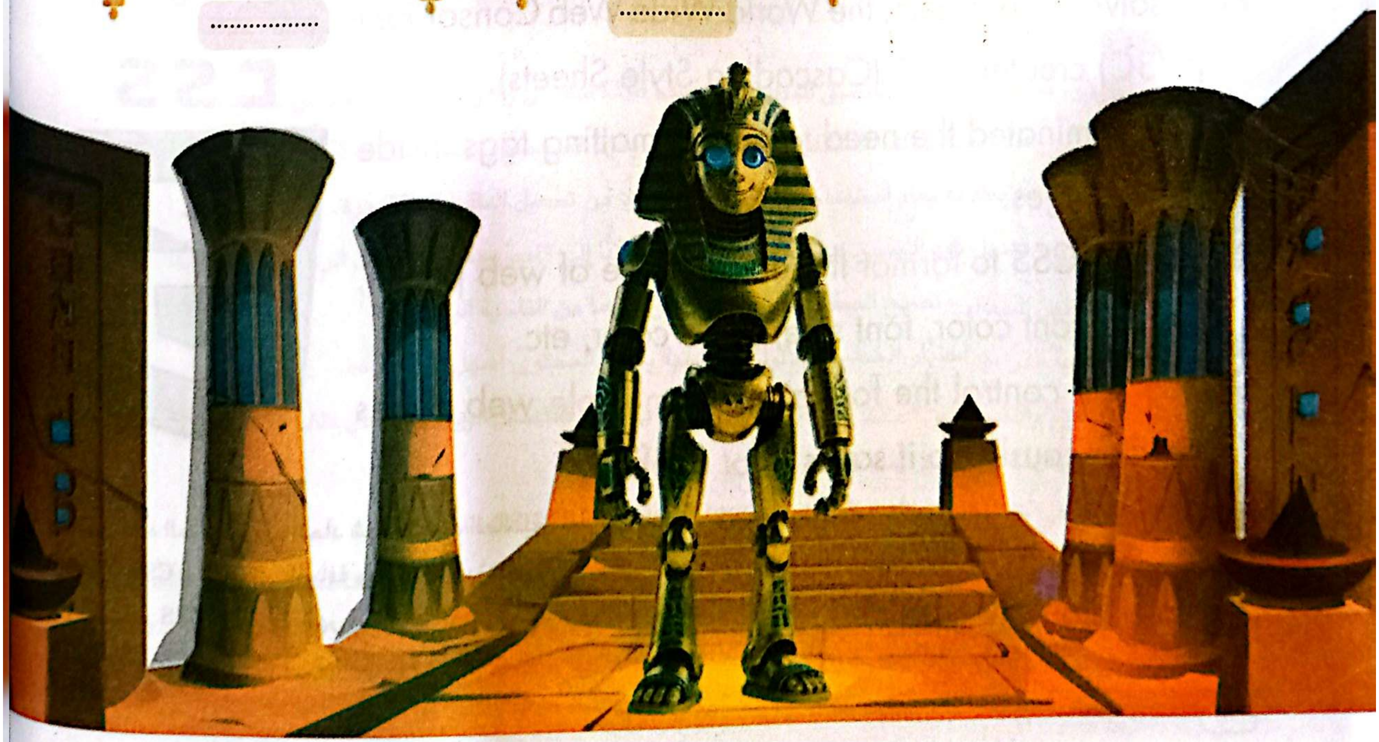
....

A beautiful interface creates a good first impression

....

Ease of navigation means that the user can quickly and effortlessly find what they are looking for

....



CamScanner

Lesson 2

Web Page Format

Introduction:

- In previous years, we studied HTML, a coding language used to create static web pages that are displayed using web browsers.
- HTML was designed to describe the content of a web page.
- To format a web page, tags such as <font> and color attributes were added to HTML.
- Developing large websites became cumbersome and tedious, as font and color formatting had to be added to each page.
- Formatting each web page became a lengthy and expensive process.

- في السنوات السابقة، درسنا لغة HTML، وهي لغة برمجية تُستخدم لإنشاء صفحات ويب ثابتة يتم عرضها باستخدام متصفحات الويب.
- تم تصميم HTML لوصف محتوى صفحة الويب.
- ولتنسيق صفحة الويب، تمت إضافة وسوم مثل <font> وخصائص الألوان إلى HTML.
- أصبح تطوير المواقع الكبيرة أمرًا مرهقًا ومملاً؛ حيث كان يجب إضافة تنسيقات الخطوط والألوان لكل صفحة على حدة.
- أدى ذلك إلى أن يصبح تنسيق كل صفحة ويب عملية طويلة ومكلفة.

The Role of CSS in Web Development

- To solve this problem, the World Wide Web Consortium (W3C) created CSS (Cascading Style Sheets).
- CSS eliminated the need to add formatting tags inside HTML pages.
- We use CSS to format the appearance of web pages, such as font color, font size, page color, etc.
- CSS can control the formatting of multiple web pages simultaneously, so it saves a lot of effort.

- لحل هذه المشكلة، قام اتحاد شبكة الويب العالمية (W3C) بإنشاء (CSS) أوراق الأنماط المتتالية.
- ألغت CSS الحاجة إلى إضافة وسوم التنسيق داخل صفحات HTML.
- نستخدم CSS لتنسيق مظهر صفحات الويب (مثل: لون الخط، حجم الخط، لون الصفحة... إلخ).
- يمكن لـ CSS التحكم في تنسيق عدة صفحات ويب في الوقت نفسه؛ مما يوفر الكثير من الجهد.

CamScanner

Benefits of CSS

- **Time-saving:** You can place the required formatting code in a separate CSS file and include it in any number of HTML pages.
- **Loading speed:** When you include CSS file in web pages, the browser downloads the CSS file once and stores it. Then, when you access any page linked to this file, it reuses the stored version instead of downloading the file each time.
- **Ease of modification:** Modifying the formatting code in the CSS file automatically changes all linked web pages.
- **Improved aesthetic appearance:** Pages become more attractive and visually organized.
- **Improved readability:** Choosing appropriate fonts and colors makes the content easier to read.
- **Separating design and formatting from content:** The appearance and formatting of web pages can be changed from the original CSS file without changing the HTML structure of each page.

When we want to change colors or fonts again, the CSS file is modified.

- **Building responsive and adaptive pages:** CSS allows you to make screen design responsive to different screen sizes (computer, mobile, tablet, etc).

فوائد CSS:

- **توفير الوقت:** يمكنك وضع كود التنسيق المطلوب في ملف CSS منفصل وإدراجه في أي عدد من صفحات HTML.
- **سرعة التحميل:** عند تضمين ملف CSS في صفحات الويب، يقوم المتصفح بتحميل ملف CSS مرة واحدة وتخزينه، ثم عند فتح أي صفحة مرتبطة به يُعاد استخدام النسخة المخزنة بدلًا من تحميل الملف في كل مرة.
- **سهولة التعديل:** تعديل كود التنسيق في ملف CSS يؤدي تلقائيًا إلى تغيير جميع صفحات الويب المرتبطة به.
- **تحسين المظهر الجمالي:** تصبح الصفحات أكثر جاذبية وتنظيمًا من الناحية البصرية.
- **تحسين قابلية القراءة:** اختيار الخطوط والألوان المناسبة يجعل المحتوى أسهل في القراءة.
- **فصل التصميم والتنسيق عن المحتوى:** يمكن تغيير مظهر وتنسيق صفحات الويب من خلال ملف CSS الأصلي دون الحاجة إلى تغيير هيكل HTML لكل صفحة.

– وعند الرغبة في تغيير الألوان أو الخطوط مرة أخرى، يتم تعديل ملف CSS فقط.

- **بناء صفحات متجاوبة ومتكيفة:** تتيح CSS جعل تصميم الصفحات متجاوبًا مع أحجام الشاشات المختلفة (حاسوب، هاتف محمول، جهاز لوحي... إلخ).

The Basic Structure of CSS

» The general syntax of CSS code:

```
Selector{Property:Value;}
```

1. Selector: The HTML element (or group of elements) you want to format such as: body, h1
2. Property: What you want to change (e.g., color, size, spacing).
3. Value: How you want to change the property (e.g., blue,red).

» Example: h1 {color: brown;}: this makes all h1 headings brown.

« الصياغة العامة لكود CSS:

1. المُحدِّد: هو عنصر HTML أو مجموعة عناصر تريد تنسيقها، مثل: body، h1.
2. الخاصية: ما تريد تغييره (مثل: اللون، الحجم، التباعد).
3. القيمة: الكيفية التي تريد بها تغيير الخاصية (مثل: blue، red).

• مثال: هذا الكود يجعل جميع العناوين من النوع h1 باللون البني.

Ways to Add CSS to HTML:

1. Inline CSS: It's used to apply formatting directly to HTML page elements.
2. Internal CSS: It's used to format individual HTML pages.
3. External CSS: It's the best for large websites to unify the design and layout of their pages.

• In this lesson, we will learn external CSS and how to write its code.

« كيفية إضافة CSS إلى HTML:

1. التنسيق المضمن (Inline CSS): يُستخدم لتطبيق التنسيق مباشرةً على عناصر صفحة HTML.
2. التنسيق الداخلي (Internal CSS): يُستخدم لتنسيق صفحة HTML واحدة فقط.
3. التنسيق الخارجي (External CSS): الأفضل للمواقع الكبيرة لتوحيد التصميم والتخطيط في جميع صفحاتها.

• في هذا الدرس، سنتعلم التنسيق الخارجي (External CSS) وكيفية كتابة كوده.

CamScanner

Using External CSS

- A CSS code is written in a separate file with <css> extension.
- Value: The CSS file is linked to the HTML page using the link tag inside the head area.

```
{
{
  <link hrf="fileName.css" rel="stylesheet";

}
}
```

- يُكتب كود CSS في ملف منفصل بامتداد "CSS".
- يتم ربط ملف CSS بصفحة HTML باستخدام وسم <link> داخل منطقة <head>.

Attributes:

- href: The name and path of the CSS file.
- rel: It is used inside the <link> tag in HTML files:
  - It specifies the relationship between the HTML file and the external file (often a CSS file).
- rel = "stylesheet": It tells the browser that the file in the href attribute is a CSS file, and should be loaded and applied to the page.

السمات:

- href: يحدد اسم ومسار ملف CSS.
- rel: يُستخدم داخل وسم <link> في ملفات HTML لتحديد العلاقة بين ملف HTML والملف «الخارجي» (غالبًا ملف CSS).
- rel = stylesheet: يُخبر المتصفح أن الملف المشار إليه في الخاصية href هو ملف CSS، ويجب تحميله وتطبيقه على الصفحة.

Example:

1 HTML File Code:

```html
<html>
<head>
<link rel="stylesheet" href="mystyle.css">
</head>
<body>
<h1>Here is the page title</h1>
<p> Here the contentappears</p>
</body>
</html>
```


CamScanner

2 CSS File Code:

```css
body {background-color: light blue;}
h1 {color: brown; font-size: 24px;}
```

Notes:

1. The **body** element in a CSS file affects the body area of the HTML file, and changes the background to light blue.
2. The **h1** element changes the main headings of the web page to brown with a size 24px.

ملاحظات:

1. عنصر body في ملف CSS يؤثر على منطقة body في ملف HTML، ويُغيِّر خلفية الصفحة إلى اللون الأزرق الفاتح.
2. عنصر h1 يُغيِّر العناوين الرئيسية في صفحة الويب إلى اللون البني مع حجم خط 24px.

أهم الكلمات والمصطلحات			
Static website pages	صفحات ويب ثابتة	Aesthetic appearance	مظهر جمالي
Internet browsers	متصفحات الإنترنت	Improved readability	تحسين قابلية القراءة
Formatting tags	وسوم التنسيق	Responsive pages	صفحات متجاوبة
Color attributes	خصائص الألوان	Adaptive design	تصميم متكيف
Cumbersome process	عملية مرهقة	Basic structure	الهيكل الأساسي
Lengthy process	عملية طويلة	External CSS	تنسيق (CSS) خارجي
Expensive process	عملية مكلفة	Link tag	وسم الربط
Cascading Style Sheets (CSS)	أوراق الأنماط المتتالية (CSS)	Stylesheet	ورقة الأنماط
Tedious	ممل	File path	مسار الملف
Time-saving	موفر للوقت	Stored version	نسخة مخزنة
Loading speed	سرعة التحميل	Background color	لون الخلفية
Ease of modification	سهولة التعديل	Uniform format	تنسيق موحد

CamScanner

Exercises on Lesson 2

1 Choose the correct answer:

1. HTML primarily describes the .... of the web page.
   a. style b. content c. interactivity d. security
2. The W3C created CSS to solve the .... problem in HTML.
   a. content b. scripting c. security d. formatting
3. A key benefit of CSS is controlling the formatting for .... web pages simultaneously.
   a. a single b. a few c. multiple d. no
4. Modifying a CSS code in one file automatically adjusts formatting for .... linked page(s).
   a. all b. one c. no d. some
5. The general CSS syntax contains Selector, Property, and ....
   a. Object b. Method c. Value d. Type
6. The selector in the CSS code represents the .... you want to format.
   a. HTML attribute b. HTML element
   c. CSS value d. CSS style
7. The extension of external CSS files is ....
   a. html b. js c. css d. txt
8. In the CSS code h1 { color: brown; }, the word color represents the ....
   a. selector b. property
   c. value d. none of them
9. In the CSS code h1 { color: blue; }, the word blue represents the ....
   a. selector b. property
   c. value d. none of them

10 An external CSS is suitable for .... websites to unify the design and layout of their pages.

a. large b. small c. medium d. all of them

11 An internal CSS is used to format .... HTML pages.

a. all b. individual c. new d. none of them

12 External CSS files are linked to HTML pages using the .... tag.

a. <body> b. <div> c. <style> d. <link>

2 Put (T) or (F):

1 📖 The HTML is used only to describe the appearance of web pages. ( )

2 📖 The CSS language was created to facilitate the formatting of web pages and to separate the formatting from the content. ( )

3 📖 One of the benefits of CSS is that it is used to design the structure and content of a page. ( )

4 📖 An external CSS file can be used to format a large number of HTML pages at once. ( )

5 📖 The <font> tag is still the preferred method for formatting text in modern HTML pages. ( )

6 📖 An external CSS file is embedded in HTML using the tag. ( )

7 📖 The browser loads the external CSS file only once and then uses the saved copy. ( )

8 📖 The rel="stylesheet" attribute is used when linking a CSS file to an HTML file. ( )

9 📖 An external CSS file can contain HTML tags. ( )

10 📖 CSS can be used to change the font size and color. ( )

11 📖 Inline CSS is used to apply styles to all pages on a website. ( )

12 📖 Internal CSS is best used on large websites to standardize the formatting. ( )

13 📖 CSS makes it easy to modify the appearance of all linked pages at once. ( )

14 📖 Formatting HTML elements with CSS makes a page more organized and attractive. ( )

15 📖 In a CSS code, the Selector defines properties such as color and size. ( )

16 📖 The body element in CSS can change the background of the entire page. ( )

17 📖 CSS makes it impossible to make a design responsive to different screen sizes. ( )

18 📖 Writing formatting codes within each HTML page is more efficient than using an external CSS. ( )

19 📖 Separating formatting from content helps speed up the editing and updating processes. ( )

20 📖 When you change the formatting in an external CSS file, the appearance of the linked pages is not affected.

3 Complete the following sentences:

1 HTML was designed to describe the .... of a web page, but CSS used to .... the appearance of web pages.

2 The basic structure of a CSS code consists of: ...., ..., and ....

3 The ways to insert CSS into HTML code are .... and ....

4 The general syntax of CSS is ....

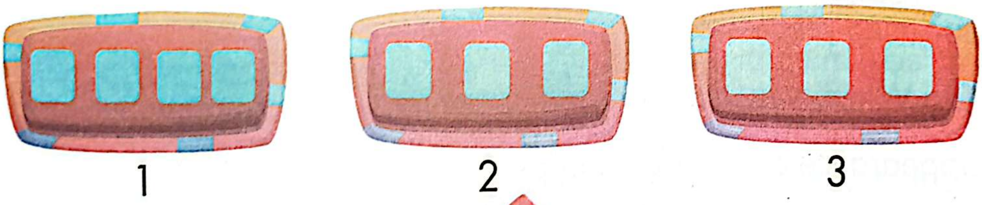
5 The CSS code: h1 {color: brown; font-size: 24px;} changes the appearance of .... and ....

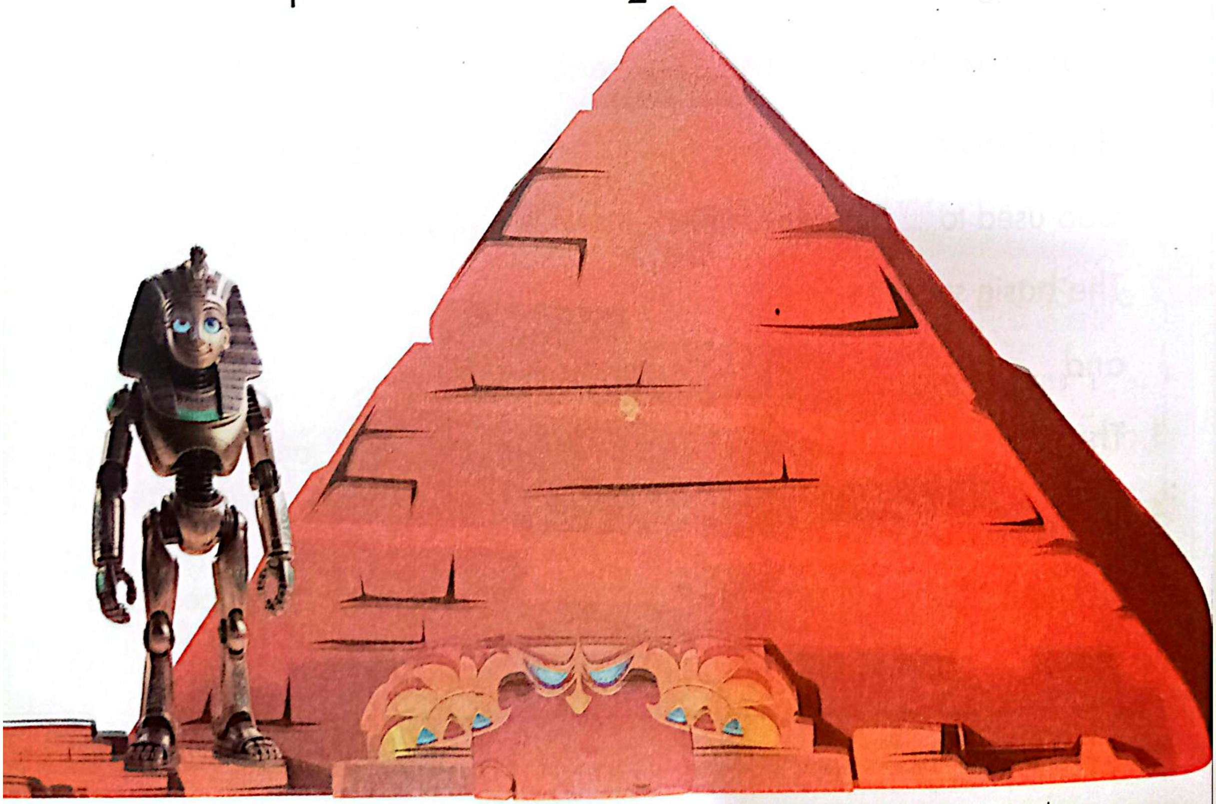
CamScanner

Play with PONY

Help the robot to open the pharaoh gate by discovering the code:

1. it is coding language used to create static website pages that are displayed using internet browsers.
2. It created CSS, eliminating the need to add tags within an HTML page.
3. We use it to format the appearance of web pages (such as font color, font size, web page color, etc.





CamScanner

Test Yourself on Lessons 1&2

1 Choose the correct answer:

1. The design that makes an application beautiful and attractive is ....
   a. UX   b. UI   c. AI   d. none of them
2. CSS helps separate a page's design from its ....
   a. header   b. footer   c. content   d. images
3. Maintaining the same style throughout an application or website is known as ....
   a. flexibility   b. consistency   c. creativity   d. complexity
4. In the CSS code h1 { color: brown; }, the part h1 represents the ....
   a. Selector   b. Property   c. Value   d. none of them
5. Organizing interface elements in a logical manner makes a website ....
   a. cluttered   b. confusing   c. difficult to use   d. easy-to-use
6. Data errors and duplication are corrected during the data .... stage.
   a. storage   b. cleaning   c. analysis   d. extraction
7. App buttons too small to be easily pressed indicates a UI design ....
   a. advantage   b. feature   c. problem   d. benefit

2 Put (T) or (F):

1. Inline CSS is the best for large websites. (   )
2. Clear and easy navigation for the user is one of the principles of UX design. (   )
3. External CSS is saved with extension css. (   )
4. A main menu with clear buttons is an example of a good navigation design. (   )
5. HTML is mainly used to change the format of a website. (   )
6. The visual appeal of the UI can affect the user's first impression. (   )
7. A single CSS file can format many web pages. (   )
8. CSS improves the website loading speed. (   )

CamScanner

Lesson 3

My Digital Project for My School

Lesson Objectives:

1. Write the HTML code needed to design two web pages.
2. Write the CSS code needed to format them.

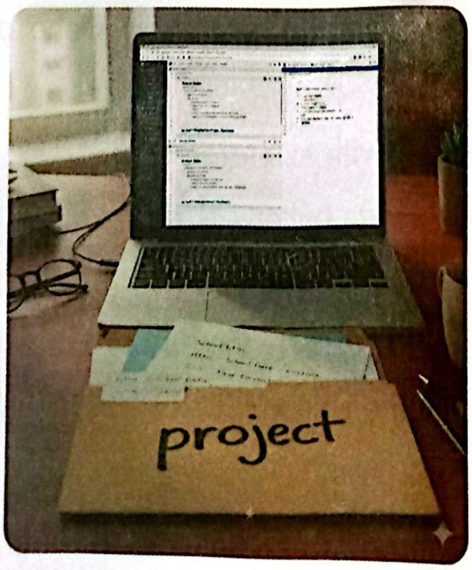
Prepare a Project Folder

1. Create a folder named "project".
2. Inside the "project" folder, use a text editor and create the files needed to implement the project.

File	Type	Function
School.htm	HTML	It stores the HTML code for the school data page.
Student.htm	HTML	It stores the HTML code for the student data page.
Style.css	CSS	It stores the CSS code used to format the two pages.

إعداد مجلد المشروع:

1. أنشئ مجلدًا باسم project.
2. داخل مجلد project، وباستخدام محرر نصوص (Text Editor)، أنشئ الملفات اللازمة لتنفيذ المشروع.



CamScanner

Activity 1: Creating School Data Page

Task:

1. Write the **HTML code** for the school data page design in the **School.htm** file.
2. Save the file.

HTML Code for the School Data Page:

School.htm

index.html

index.html

Copy code

```
<html>
<head>
<title>Student Data</title>
<link rel="stylesheet" href="style.css">
</head>
<body>

<div class="container">
<header>
<h1>Student Information</h1>
</header>

<section>
<h2>Personal Information</h2>
<img src="st.jpg" width="300" height="200"><br><br>
Student Name: [Student's Full Name]<br><br>
Date of Birth: [Student's Date of Birth]<br><br>
Grade: [Student's Grade]<br><br>
Residence: [Student's Residence]
</section>

<section>
<h2>Contact Information</h2>
Parent Phone Number: [Parent Phone Number] <br><br>
Student Email (if applicable): [Student's Email]
</section>

<footer>
<p> Student Information &copy; 2025</p>
</footer>

</div>
</body>
</html>
```


CamScanner

Explanation of the HTML Code:

1. <html>: It is the main element containing the entire content of the page.
2. <head>: It contains important information for the browser like the title and CSS link. It doesn't appear on the page.
   - <title>: It is the title that appears in the browser bar (in this case <School Data>).
   - <link rel="stylesheet href" = "style.css": It links the HTML file to an external CSS file called style.css to style (format) the page.
3. <body>: It contains the content that appears to the user.
4. <div class = <container>:
   - The div element is used as a container or section of the page to organize content and can be used to group elements for purposes such as styling.
   - class = <container>: It refers to CSS code used to style the container and its content.
5. <header>: It identifies the top of the page or container, containing the main heading.
   - It enhances the organization of the page.
6. <h1>.... </h1>: It provides a main title for the page. (e.g., [School Name]).
7. <section>: It divides the container into two sections:
   1. First section: Basic School Information.
   2. Second section: School Activities
8. <h2>Basic Information </h2>: It's a subtitle (subheadings) for the first section.
9. <h2>Basic Information </h2>: It's a subtitle (subheadings) for the second section.
10. <footer>: It represents the bottom of the page or container. It often contains copyright or contact information.
11. <p>: School Information © 2025 </p> : It displays a paragraph of text displaying the copyright symbol.
12. </div>: Close the div container.
13. </body>: Close the body element.
14. </html>: Close the html element.

Activity 2: Student Data Page

1. Write the HTML code for the student data page design in the Student.htm file.
2. Save the file.

HTML Code for the Studeut Data Page:

index.html

Copy code

```
<html>
<head>
<title>Student Data</title>
<link rel="stylesheet" href="style.css">
</head>
<body>

<div class="container">
<header>
<h1>Student Information</h1>
</header>

<section>
<h2>Personal Information</h2>
<img src="st.jpg" width="200" height="200"><br><br>
Student Name: [Student's Full Name]<br><br>
Date of Birth: [Student's Date of Birth]<br><br>
Grade: [Student's Grade]<br><br>
Residence: [Student's Residence]
</section>

<section>
<h2>Contact Information</h2>
Parent Phone Number: [Parent Phone Number] <br><br>
Student Email (if applicable): [Student's Email]
</section>

<footer>
<p> Student Information &copy; 2025</p>
</footer>

</div>
</body>
</html>
```

Explanation of the Code:

Look at the explanation of Activity 1

Activity 3: CSS Code for Formatting My Two Web Pages

style.css

```css
/* the CSS code for formatting my two web pages */

body {
  text-align: center;
  font-weight: bold;
}

.container {
  width: 80%;
  margin: auto;
  background-color: lightcyan;
}

header {
  padding: 10px;
  color: white;
  background-color: darkblue;
}

section {
  padding: 15px;
}

h2 {
  padding-bottom: 10px;
  border-bottom: 5px solid blue;
}

footer {
  padding: 10px;
  color: white;
  background-color: darkblue;
}
```

Explanation of the CSS Code:

1 Body: This part controls the appearance of the entire page.

- text-align: center; → Centers the text in the center of the page.
- font-weight: bold; → Makes the text bold.

❶ Body: هذا الجزء يتحكم في مظهر الصفحة بالكامل.

- text-align :center; ← يجعل النص في منتصف الصفحة.
- font-weight :bold; ← يجعل النص عريضًا (غامقًا).

2 Container: This part controls the div container's layout.

- width: 80%; → The container width is 80% of the page width.
- margin: auto; → Centers the container horizontally.
- background-color: lightcyan; → Makes the container's color (background) light cyan.

❷ Container: هذا الجزء يتحكم في تخطيط div container.

- width: 80% ← يجعل عرض الحاوية 80 % من عرض الصفحة.
- margin :auto ← يُوسِّط الحاوية أفقيًا.
- background-color :lightcyan ← يجعل خلفية الحاوية باللون السماوي الفاتح.

3 Header: Contains the layout for the top bar containing the container's title.

- padding: 10px; → Adds 10 pixels of internal space around the content to make the bar taller.
- color: white; → Makes the font color white for the top bar.
- background-color: darkblue; → Makes the top bar color dark blue.

❸ Header: يحتوي على تنسيق الشريط العلوي الذي يضم عنوان الحاوية.

- padding :10px ← يضيف مسافة داخلية مقدارها 10 بكسل حول المحتوى؛ مما يجعل الشريط أعلى.
- color :white ← يجعل لون خط الشريط العلوي أبيض.
- background-color :darkblue ← يجعل لون الشريط العلوي أزرق داكنًا.

4 Section:

- It is the main content box (for example, <School Information>).
- padding: 15px; → Adds a 15px margin between the content of the element (the content box) and its border.

- h2: Controls the subheading format.
- padding-bottom: 10px; → Specifies the space below the subheading.
- border-bottom: 5px solid blue; → Makes a 5px thick line under the subheading and color blue.

Section: هو صندوق المحتوى الرئيسي (على سبيل المثال: معلومات المدرسة).

- padding: 15px ← يضيف مسافة مقدارها 15 بكسل بين محتوى العنصر وحدوده.

h2: يتحكم في تنسيق العناوين الفرعية.

- padding-bottom: 10px ← يحدد المسافة أسفل العنوان الفرعي.
- border-bottom: 5px solid blue ← يرسم خطًا سميكًا (5 بكسل) باللون الأزرق تحت العنوان الفرعي.

5 Footer:

- It contains the formatting for the bar below the container.
- It's almost identical to the header formatting.

5 Footer:

- يحتوي على تنسيق الشريط السفلي أسفل الحاوية.
- تنسيقه مشابه تقريبًا لتنسيق header.

أهم الكلمات والمصطلحات			
Digital project	مشروع رقمي	Attribute	سمة / خاصية
Text editor	محرر نصوص	File path	مسار الملف
Folder	مجلد	A parent's phone number	رقم هاتف ولي الأمر
Function	وظيفة / مهمة	Personal information	معلومات شخصية
Copyright	حقوق النشر	Contact information	معلومات الاتصال
Container	حاوية	External CSS	تنسيق خارجي باستخدام CSS
Section	قسم	Format	تنسيق
Header	رأس الصفحة	Responsive	متجاوب
Footer	تذييل الصفحة	Adaptive	تكيفي / قابل للتكيف

Exercises on Lesson 3

1 Choose the correct answer:

1. The <title> tag defines the title that appears in the .... bar.
   a. address b. report c. browser d. navigation
2. An external CSS file is linked to an HTML page using the .... tag.
   a. <link> b. <head> c. <style> d. <body>
3. The <body> tag contains the .... that appears to the user.
   a. metadata b. script c. content d. links
4. The <header> tag defines the .... of the page or container.
   a. bottom b. top c. middle d. side
5. The <footer> tag typically contains .... or contact information.
   a. main content b. images c. navigation d. copyright
6. The href attribute in the <link> tag specifies the .... of the CSS file.
   a. type b. relationship c. path d. language

2 Put (T) or (F):

1. The <title> tag's content appears in the browser's body. ( )
2. The <body> section contains content visible to the user. ( )
3. The <header> element is located at the bottom of a page or container. ( )
4. The <h1> tag provides a main title for the page. ( )
5. The <footer> element often contains copyright information. ( )
6. Padding adds space outside an element's border. ( )

CS CamScanner

Play with PONY

Match:

1 It provides a main title for the page.	HTML
2 It defines the title that appears in the browser bar.	Head
3 This part contains important information for the browser, but does not appear within the content of the page itself.	Footer
4 This is where the content that appears to the user is written.	h1
5 This tag is the main element that contains the entire content of the page.	Title
6 It represents the bottom of the page or container and often contains copyright or contact information.	Body

Lesson 4

Creating Your Website with the Help of Artificial Intelligence

- Now, you can create your own website in short time using artificial intelligence.
- Your can use this website to show your ideas, hobbies, or school project to the world.

The Importance of Having a Website

- Websites have become an essential part of our lives. Here are some reasons why having a website is important:

1. A platform for self-expression: To show your hobbies, talents, and achievements.
2. Showcase school projects: To show your school projects and research in a professional and attractive way.
3. A way to connect with the world: To share your thoughts and interests with like-minded people.
4. Developing future skills: An opportunity to learn important digital skills that will benefit you in your studies and future career.

- أصبحت المواقع الإلكترونية جزءًا أساسيًّا من حياتنا. وفيما يلي بعض الأسباب التي تجعل امتلاك موقع أمرًا مهمًّا:

1. منصة للتعبير عن الذات: عرض هواياتك، مواهبك، إنجازاتك.
2. عرض المشاريع المدرسية: إظهار مشاريعك وأبحاثك المدرسية بطريقة احترافية وجذابة.
3. وسيلة للتواصل مع العالم: مشاركة أفكارك واهتماماتك مع أشخاص يشاركونك نفس الميول.
4. تطوير مهارات المستقبل: فرصة لتعلُّم مهارات رقمية مهمة ستفيدك في دراستك وحياتك المهنية المستقبلية.

Using Artificial Intelligence for Website Design

- Artificial intelligence enables computers to learn and think like humans.
- It can help us design and build websites based on what we ask of them.

Before AI tools:

Creating a website requires learning programming languages, such as HTML, CSS, and JavaScript.

CamScanner

With AI tools today:

- We can create professional websites in minutes without writing a single line of code.
- AI can understand what you want and implement it quickly. All you have to do is tell it what you want your website to look like, and it will design and build it.

• يُمكِّن الذكاء الاصطناعي أجهزة الكمبيوتر من التعلُّم والتفكير مثل البشر.

• يمكنه مساعدتنا في تصميم وبناء مواقع إلكترونية بناءً على ما نطلبه منه.

• قبل أدوات الذكاء الاصطناعي:

• كان إنشاء موقع إلكتروني يتطلَّب تعلُّم لغات البرمجة مثل: HTML و CSS و JavaScript.

• مع أدوات الذكاء الاصطناعي اليوم:

• يمكننا إنشاء مواقع احترافية في دقائق دون كتابة سطر واحد من الكود.

• يستطيع الذكاء الاصطناعي فهم ما تريده وتنفيذه بسرعة. كل ما عليك فعله هو إخباره بكيفية رغبتك في أن يبدو موقعك، وسيقوم بتصميمه وبنائه.

Artificial intelligence can:

1. Understand simple commands and transform them into a design.
2. Save time and effort of learning complex programming languages.
3. Suggest creative ideas and designs.
4. Quickly modify the design based on your feedback.

• يمكن للذكاء الاصطناعي أن:

• يفهم الأوامر البسيطة ويُحوِّلها إلى تصميم.
• يُوفِّر الوقت والجهد المبذول في تعلُّم لغات البرمجة المعقدة.
• يقترح أفكارًا وتصاميم مبتكرة.
• يُغيِّر التصميم بسرعة بناءً على ملاحظاتك.

Artificial Intelligence Tools for Website Creation

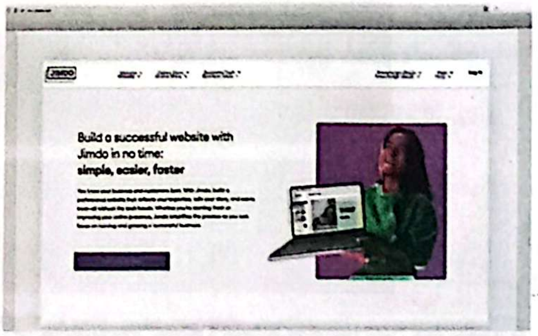
- We will use smart tools powered by AI to create websites.
- These smart tools understand what we want and translate it into a real design.

• سنستخدم أدوات ذكية مدعومة بالذكاء الاصطناعي لإنشاء المواقع الإلكترونية.

• هذه الأدوات الذكية تفهم ما نريده وتُحوِّله إلى تصميم حقيقي.

CamScanner

Examples of AI Tools:

Wegic	Jimdo Dolphin
• It uses AI to generate websites based on your commands and preferences. Features: 1 Easy-to-use interface 2 Diverse design options suitable for students Tool Link: wegic.ai 	• It uses AI to generate websites from simple information. Features: 1 Easy-to-use platform. 2 Mobile-friendly. 3 A modern design suitable for small businesses. 4 No technical skills required. Link: jimdo.com 

In this lesson, we will use wegic.ai because of its ease of use and availability of a free plan.

NOTES:

- Before you create your website, write down your ideas, such as:
  1. The type of website (personal, blog, hobby site, school project).
  2. Select 2–3 colors for the web pages.
  3. Select the theme of the website.
  4. Decide the pages you need to create on the website (Home, About, Contact, etc).

قبل أن تبدأ بإنشاء موقعك، اكتب أفكارك مثل:

1 نوع الموقع (شخصي، مدونة، موقع للهوايات، مشروع مدرسي).

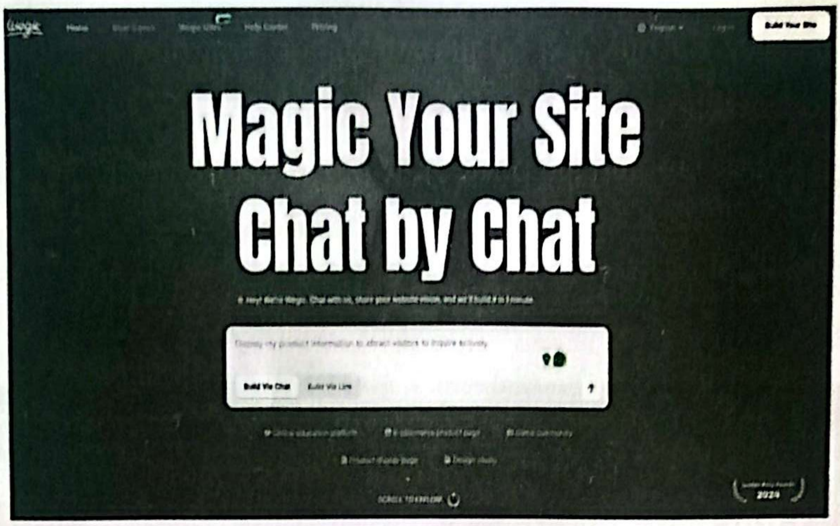
2 اختر من 2–3 ألوان لصفحات الموقع. 3 حدِّد سمة (Theme) الموقع.

4 قرِّر الصفحات التي تحتاج إلى إنشائها في الموقع (الرئيسية، مَن نحن؟، تواصل معنا... إلخ).

CamScanner

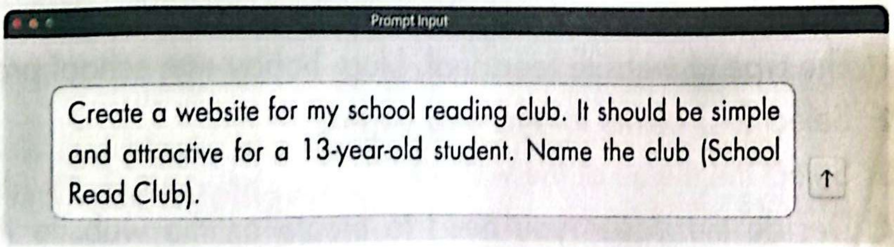
Steps to Create a Website using Wegic.ai

1. Log in to https://wegic.ai/app
2. Create a simple account using your email.
3. Click Start Now and follow the steps.
4. Click Build Your Site.



First: Determine the Type of the Website:

- Tell the AI what type of website you want to create. Be clear and specific to get the best results.
- In the writing space, type a command for AI.



- The text commands given to the AI tool to build the website are called **(prompt)**.

أولًا: تحديد نوع الموقع الإلكتروني:

- أخبر الذكاء الاصطناعي بنوع الموقع الذي تريد إنشاءه، كن واضحًا ومحددًا لتحصل على أفضل النتائج.
- في خانة الكتابة، اكتب أمرًا موجهًا للذكاء الاصطناعي.
- تُسمَّى الأوامر النصية التي تُكتب في أداة الذكاء الاصطناعي لبناء الموقع بـ (Prompt).

- You will be asked for:

1 The website name:

It is preferable to write the website name in English.

2 The content type:

e.g. Educational articles, book reviews, reading recommendations, etc.

- Follow the remaining steps below until completion.
- You can preview the website while you type commands to the AI, as in the following image:

سيُطلب منك:

1 اسم الموقع: يُفضَّل كتابة اسم الموقع باللغة الإنجليزية.

2 نوع المحتوى: مثل: المقالات التعليمية، مراجعات الكتب، توصيات للقراءة... إلخ.

- اتبع الخطوات المتبقية أدناه حتى إتمام العملية.
- يمكنك معاينة الموقع أثناء كتابة الأوامر للذكاء الاصطناعي، كما في الصورة التالية:

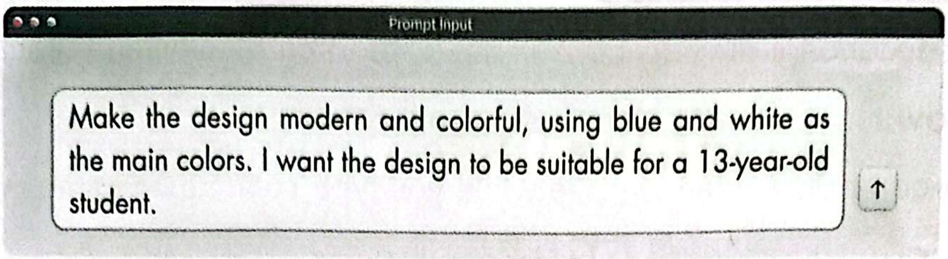
1 A window for writing commands to the AI.
2 A window for viewing the chat between you and the AI.
3 A window for previewing the execution of commands to the AI.

1 نافذة لكتابة الأوامر للذكاء الاصطناعي. 2 نافذة لعرض المحادثة بينك وبين الذكاء الاصطناعي.

3 نافذة لمعاينة تنفيذ الأوامر بواسطة الذكاء الاصطناعي.

Second: Choosing the Design and Colors:

- After selecting the type and name of the site, you can direct the AI to choose your design and colors.
- In the writing space, type a command for the AI (Prompt):



ثانيًا: اختيار التصميم والألوان:

- بعد تحديد نوع واسم الموقع، يمكنك توجيه الذكاء الاصطناعي لاختيار التصميم والألوان.
- في خانة الكتابة، اكتب أمرًا موجهًا للذكاء الاصطناعي (Prompt):

Common design patterns:

1. Modern: Simple and elegant.
2. Playful: Bright colors and animated elements.
3. Professional: Elegant and calm.
4. Creative: Untraditional and distinctive.

أنماط التصميم الشائعة:

1. حديث: بسيط وأنيق.
2. مَرِح: ألوان زاهية وعناصر متحركة.
3. احترافي: أنيق وهادئ.
4. إبداعي: غير تقليدي ومميَّز.

Color coordination ideas:

- Blue, green, white
- Purple, pink, light white
- Black, gold, white

أفكار لتنسيق الألوان: • أزرق، أخضر، أبيض. • بنفسجي، وردي، أبيض فاتح. • أسود، ذهبي، أبيض.

NOTES:

1. Choose 2–3 colors maximum that harmonize with each other.
2. Clashing colors can make your site difficult to read and visually distracting!

ملاحظة:
1. اختر من 2–3 ألوان كحد أقصى تكون منسجمة مع بعضها.
2. الألوان المتضاربة قد تجعل موقعك صعب القراءة ومُشتت بصريًا!

CamScanner

Third: Adding Basic Pages:

- Every website needs a structure of different pages to organize the content.
- Ask AI to create pages.
- In the writing space, type a command for the AI (Prompt):

> Prompt Input
>
> Add a home page, an 'About Us' page, a 'Our Activities' page, and a 'Contact Us' page.

Suggested web pages:

- Home: overview and welcome.
- About Us: information about you or your project.
- Blog/Articles: a place to share ideas.
- Image Gallery: images that express your interests.
- Contact Us: ways to contact you.

ثالثًا: إضافة الصفحات الأساسية:

- يحتاج كل موقع إلكتروني إلى هيكل من صفحات مختلفة لتنظيم المحتوى.
- اطلب من الذكاء الاصطناعي إنشاء الصفحات.
- في خانة الكتابة، اكتب أمرًا موجهًا للذكاء الاصطناعي (Prompt):

الصفحات المقترحة للموقع:

الرئيسية: نظرة عامة وترحيب بالزوار. مَن نحن؟: معلومات عنك أو عن مشروعك.
مدونة/مقالات: مكان لمشاركة الأفكار. معرض الصور: صور تُعبِّر عن اهتماماتك. تواصل معنا: طرق للتواصل معك.

Fourth: Adding Content to Each Page:

- In the writing space, type a command for the AI (Prompt):

> Prompt Input
>
> Add an 'About Us' page explaining that this site is for my school's book club. We are a group of students who are interested in reading and meet weekly to discuss the books we are reading.

- Don't worry if the text suggested by the AI isn't perfect; you can modify and improve it later.

رابعًا: إضافة المحتوى لكل صفحة:

- في خانة الكتابة، اكتب أمرًا موجهًا للذكاء الاصطناعي (Prompt):
- لا تقلق إذا لم يكن النص المقترح من الذكاء الاصطناعي مثاليًا؛ يمكنك تعديله وتحسينه لاحقًا.

CamScanner

Fifth: Adding an Image Gallery:

- Images add vibrancy and appeal to your website.
- Let's request a dedicated section to display images.
- In the writing space, type a command for the AI (Prompt):

Prompt Input

I'm adding a photo section where I can display photos of club events and book covers we've read. I want to display the photos in a nice grid format that allows visitors to click on the image to view it larger.

Available Gallery types:

- **Grid Gallery:** Equal-sized images arranged in a grid.
- **Slideshow:** Animated images appear one after the other.
- **Masonry:** Images of different sizes arranged in a grid.
- **Lightbox:** Opens in a large format on click.

خامسًا: إضافة معرض صور:

- تضيف الصور حيوية وجاذبية لموقعك الإلكتروني.
- لنطلب من الذكاء الاصطناعي إنشاء قسم مخصص لعرض الصور.
- في خانة الكتابة، اكتب أمرًا موجهًا للذكاء الاصطناعي (Prompt):

أنواع المعارض المتاحة:

- **معرض شبكي:** صور متساوية الحجم مرتبة في شبكة.
- **عرض شرائح:** تظهر الصور المتحركة واحدة تلو الأخرى.
- **معرض متنوع الأحجام:** صور بأحجام مختلفة مرتبة في شبكة.
- **عرض منبثق:** تفتح الصور بحجم كبير عند النقر عليها.

NOTES:

The AI adds default images, which you can later replace with your own.

يضيف الذكاء الاصطناعي صورًا افتراضية، ويمكنك لاحقًا استبدالها بصورك الخاصة.

Sixth: Adding Contact Form and Contact Information:

- It's important for your website visitors to be able to contact you.
- Let's add a way for them to contact you.
- In the writing space, type a command for the AI (Prompt):

Prompt Input

Add a contact form on a separate page called 'Contact Us' so that those interested in joining the club can submit their applications. Also include contact information such as the club's email address and meeting times.

CamScanner

What you can add in the contact section?

- **Contact form:** For visitors to send you direct messages.
- **Email:** with your teacher or parent's permission.
- **Social media links:** if you have them.
- **QR Code:** leading to your website or contact information.

» **Safety Alert:** Only share safe contact info with teacher/parent's approval.

سادسًا: إضافة نموذج الاتصال ومعلومات التواصل:

- من المهم أن يتمكن زوار موقعك من التواصل معك.
- لنقم بإضافة وسيلة لهم للتواصل معك.
- في خانة الكتابة، اكتب أمرًا موجهًا للذكاء الاصطناعي (Prompt):

ما يمكنك إضافته في قسم الاتصال:

- نموذج الاتصال: لتمكين الزوار من إرسال رسائل مباشرة إليك.
- البريد الإلكتروني: بموافقة معلمك أو أحد والديك.
- روابط وسائل التواصل الاجتماعي: (إذا كانت لديك).
- رمز QR: يؤدي إلى موقعك الإلكتروني أو معلومات الاتصال الخاصة بك.

» تنبيه أمني: شارك معلومات اتصال آمنة فقط وبموافقة المعلم أو أحد والديك.

Customize and Edit Your Website

» After the AI has created the basic structure of your website, it's time to add your own personal touch and make it unique!

» **Edit text:** Click on any text on the website to edit and add personalized content that expresses you.

» In the text area, type a command for the AI (Prompt):

> Prompt Input
>
> This text has been modified to be more engaging and suitable for middle school students.

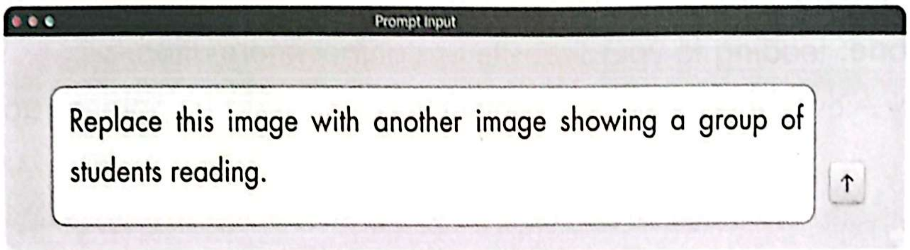
» **Change colors and fonts :** Try different color combinations.

» In the text box, type a command for the AI (Prompt):

> Prompt Input
>
> Change the title color to light green and the background color to beige.

PONY - ICT Prep. 2 - First Term 103
CS CamScanner

- Add personal photos: Replace the default photos with your own (with your teacher's permission).
- In the text box, type a command for the AI (Prompt):



- بعد أن يقوم الذكاء الاصطناعي بإنشاء الهيكل الأساسي لموقعك، حان الوقت لإضافة لمستك الشخصية وجعله فريدًا!
- تحرير النص: انقر على أي نص في الموقع لتعديله وإضافة محتوى شخصي يعبر عنك.
- في خانة النص، اكتب أمرًا موجهًا للذكاء الاصطناعي (Prompt):
- تغيير الألوان والخطوط: جرِّب مجموعات ألوان مختلفة.
- في خانة النص، اكتب أمرًا موجهًا للذكاء الاصطناعي (Prompt):
- إضافة الصور الشخصية: استبدل الصور الافتراضية بصورك الخاصة (بموافقة المعلم).
- في خانة النص، اكتب أمرًا موجهًا للذكاء الاصطناعي (Prompt):

Final Website

- The website is ready to be published online.

Important Tips for a Successful Website

Ideas for Improving Your Website:

- Add a custom logo to your website.
- Add a schedule if your website is for a club or team.
- Include short videos (if available).
- Add links to other useful pages.

أفكار لتحسين موقعك الإلكتروني:

- أضف شعارًا مخصصًا لموقعك.
- أضف جدولًا إذا كان موقعك مخصصًا لنادٍ أو فريق.
- أدرج مقاطع فيديو قصيرة (إذا كانت متوفرة).
- أضف روابط لصفحات أخرى مفيدة.

Tips for Choosing the Colors:

- Use only 2-3 primary colors.
- Ensure good contrast between the text and the background.
- Choose clear, easy-to-read fonts.

نصائح لاختيار الألوان:

- استخدم 2–3 ألوان رئيسية فقط.
- تأكد من وجود تباين جيد بين النص والخلفية.
- اختر خطوطًا واضحة وسهلة القراءة.

Your website should be characterized by:

1. Simplicity: Don't overcomplicate your website with too many elements; a simple, organized design is more attractive and easier to use.
2. Mobile-friendly Website: Most people browse the internet on their smartphones, so make sure your website looks good on small screens.
3. Privacy & Security: Don't share personal information like your address or phone number on your public website. Use a contact form instead.
4. Constant Updates: A website is like a garden; it needs constant care. Update its content regularly to keep it fresh and useful.

يجب أن يتميّز موقعك الإلكتروني بـ:

1. **البساطة:** لا تُعقد موقعك بالكثير من العناصر؛ التصميم البسيط والمنظم أكثر جاذبية وأسهل استخدامًا.
2. **التوافق مع الهواتف المحمولة:** معظم الأشخاص يتصفحون الإنترنت عبر هواتفهم، فتأكد من أن موقعك يبدو جيدًا على الشاشات الصغيرة.
3. **الخصوصية والأمان:** لا تشارك معلومات شخصية مثل عنوانك أو رقم هاتفك على موقعك العام. استخدم نموذج الاتصال بدلًا من ذلك.
4. **التحديث المستمر:** الموقع الإلكتروني مثل الحديقة؛ يحتاج إلى رعاية مستمرة. حدِّث محتواه بانتظام ليظل جديدًا ومفيدًا.

NOTE:

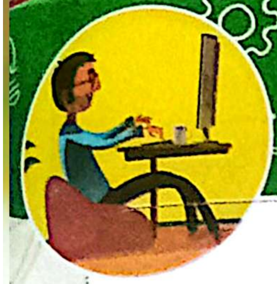
Get approval before sharing any personal information online. Safety and privacy come first.

احصل على الموافقة قبل مشاركة أي معلومات شخصية على الإنترنت. السلامة والخصوصية تأتي أولًا!

أهم الكلمات والمصطلحات

Artificial intelligence	الذكاء الاصطناعي	Grid gallery	معرض شبكي
Digital window	نافذة رقمية	Slideshow	عرض شرائح
Creative content	محتوى إبداعي	Masonry gallery	معرض متنوع الأحجام
Programming skills	مهارات برمجة	Lightbox gallery	معرض منبثق
Professional websites	مواقع احترافية	Contact form	نموذج تواصل
Simple commands	أوامر بسيطة	Social media links	روابط وسائل التواصل الاجتماعي
Creative ideas	أفكار إبداعية	QR Code	رمز الاستجابة السريعة
Design options	خيارات التصميم	Mobile-friendly	متوافق مع الهواتف
Free plan	خُطة مجانية	Privacy and security	الخصوصية والأمان
Prompt	موجه (تعليمات نصية)	Constant updates	تحديثات مستمرة
Design patterns	أنماط التصميم	Positive feedback	ملاحظات إيجابية
Color coordination	تنسيق الألوان	Science blog	مدونة علمية

CamScanner



Exercises on Lesson 4

1 Choose the correct answer:

1. What is the primary purpose of creating a website?
   - a. Playing games only
   - b. Communicating and displaying information to the world
   - c. Storing personal files
   - d. Sending text messages only

2. Creating a website requires learning programming languages, such as ....
   - a. HTML
   - b. CSS
   - c. JavaScript
   - d. all of them

3. What has made creating websites much easier now?
   - a. The increase in the number of programmers
   - b. The use of artificial intelligence technologies
   - c. The decrease in the price of computers
   - d. The disappearance of programming languages

4. An example of an AI tool that helps in building websites is ....
   - a. Paint
   - b. Word
   - c. Wegic.ai
   - d. Calculator

5. A successful website should have a .... design.
   - a. complex
   - b. cluttered
   - c. simple
   - d. random

6. When using AI tools to build a website, do you need to be a programming expert?
   - a. Yes, you must be a professional.
   - b. Yes, you need some experience.
   - c. No, you don't need advanced programming experience.
   - d. Only if you want a complex website.

7 📖 What are the scripts we write to an AI tool to create a website called?

a. Code
b. Descriptive Images
c. Prompt
d. URL

8 📖 If you want to make your website about a sports club, which prompt is the most appropriate for the first step?

a. Choose a blue design
b. Add a contact page
c. Create a website for a sports club
d. Add pictures of books

9 📖 To add information about yourself or the topic of your website, which page do you most often create?

a. Contact Page
b. Photo Page
c. "About Us" page
d. Home Page

10 📖 Why is it important to determine the colors and overall design of the website at the beginning of work?

a. So that the icons appear better
b. To customize the basic appearance of the website
c. To increase the website speed
d. To attract more programmers

11 📖 What does an "Image Page" add to your website?

a. Introductory text
b. Contact information
c. Attractive visual elements
d. Audio clips

12 📖 Which of the following is NOT considered contact information that might be added to a website?

a. Email
b. Social media link
c. Phone number
d. Designer's name

13 📖 After AI creates the basic structure of the website, what can you do?

a. Nothing, it can't be modified.
b. I can make minor changes to the design and text.
c. I can recreate the website from scratch.
d. I can delete the entire website.

CamScanner

14 📖 Why is it important for prompts to be simple and clear?

a. To reduce the size of the website

b. To help AI better understand your request

c. To increase the number of visitors

d. To save time when publishing

15 It is important to use .... contact information when creating websites.

a. personal b. public c. safe d. unlimited

16 📖 The main goal of using AI in website building in our lesson is to ......

a. transform you into a professional web developer

b. introduce you to the capabilities of AI in website building

c. save money on programmers

d. create gaming websites only

2 Put (T) or (F):

1 In the past, website design required learning HTML, CSS, and JavaScript. ( )

2 📖 Creating a website using artificial intelligence requires you to write complex codes. ( )

3 📖 The importance of websites is limited to large companies only. ( )

4 Websites can include text, photos, and even videos. ( )

5 📖 You can use wegic.ai to create a simple website using text commands. ( )

6 Jimdo Dolphin requires advanced technical skills to use. ( )

7 📖 The "About Us" page is used to display images of your activities. ( )

8 Websites should use many different colors to look attractive. ( )

CamScanner

9. 🕮 The prompt is the text command you give to the artificial intelligence tool to understand your request. ( )
10. 🕮 After the website is created by artificial intelligence, you cannot make any modifications to it. ( )
11. 🕮 Choosing colors and design at the beginning of work is not very important. ( )
12. Updating a website regularly keeps it useful and fresh. ( )
13. Social media links can be part of a website's contact information. ( )
14. Sharing your home address on a public website is a safe practice. ( )
15. A mobile-friendly design makes websites easy to view on phones. ( )

3 Complete the following sentences:

1. 🕮 To create a website that showcases your ideas to the world, you need ....
2. 🕮 Artificial intelligence technologies help facilitate the process of .... websites.
3. 🕮 A tool like .... works based on the text you write.
4. 🕮 The prompt is the .... we enter into the AI tool.
5. 🕮 The first step in creating a website with AI is to define the .... of the website.
6. 🕮 To add a place to display your images on the website, you can ask the AI to add a section for ....
7. 🕮 The "About Us" page is used to provide an introductory .... about the website's topic.

CamScanner

8 📖 Text commands should be simple and .... for the AI to understand.

9 📖 After creating the website, you can perform simple .... on the text and design.

10 📖 One of the most important aspects of websites in the current era is that they are a means of .... and displaying information.

4 Answer the following question:

- 📖 If you had the opportunity to create your own website, what would its topic be, what would be the two most important pages you would want to add, and why?

....

....

Play with PONY

1 Creating a website using artificial intelligence requires you to write complex codes.

2 The importance of websites is limited to large companies only.

3 You can use wegic. ai to create a simple website using text commands.

4 The About Us page is used to display images of your activities.

5 The prompt is the text command you give to the artificial intelligence to understand your request.

6 After the website is created by artificial intelligence, you cannot make any modifications to it.

7 Choosing colors and design at the beginning of work is not very important.

CS CamScanner

Play with PONY

1- .... transmits information and determines the location.

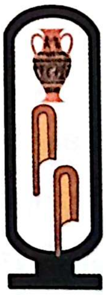
2- .... is a large language model, like GPT, it requires processing very large text.

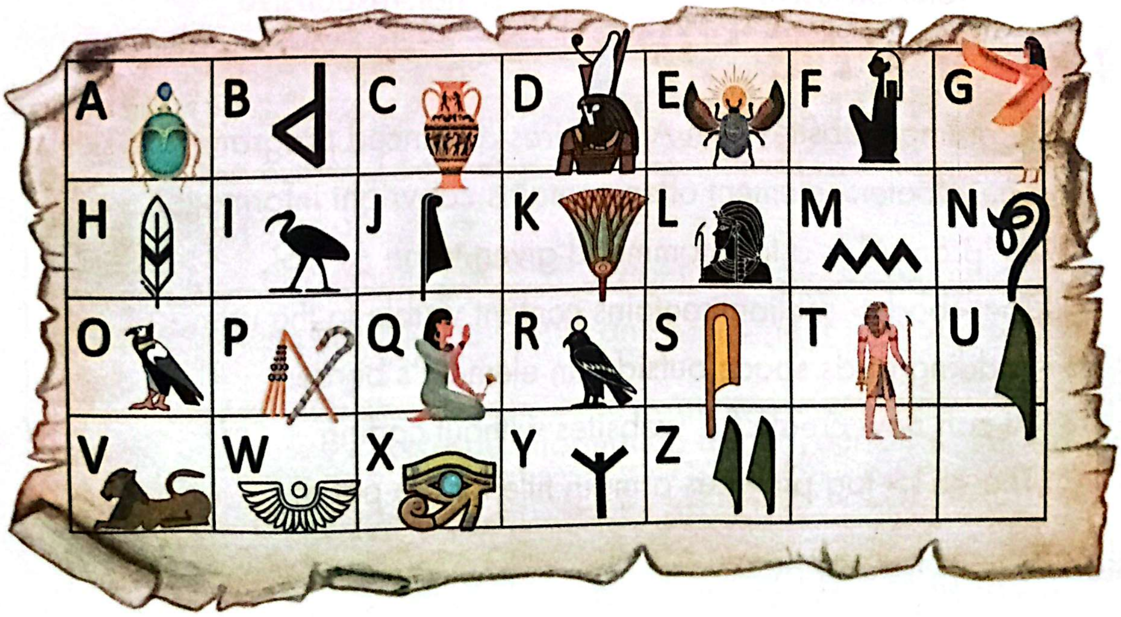
3- .... analyzes the problem and makes appropriate decisions.

4- .... makes the application beautiful and attractive.

5- .... makes using the website or application easy and convenient.

6- Use .... to format the appearance of web pages (such as font color, font size)





Test Yourself on Lessons 3&4

1 Choose the correct answer:

1. Creating websites now is made easier by .... technologies.
   a. programming b. AI c. traditional d. manual
2. The <title> tag defines the title that appears in the .... bar.
   a. address b. report c. browser d. navigation
3. .... is an example of an AI tool that helps in building websites.
   a. Jimdo Dolphin b. Wegic c. both a and b d. none of them
4. The commands given to an AI tool to build a website are called ....
   a. codes b. scripts c. prompts d. queries
5. It is important to use .... harmonious colors for a website design.
   a. 5-6 b. 2-3 c. many d. clashing
6. The <header> tag defines the .... of the page or container.
   a. bottom b. top c. middle d. side
7. The web page used to provide information about yourself or the site is ....
   a. Contact Us b. Home c. Image Gallery d. About Us
8. Websites should be designed to be .... to look good on smartphones.
   a. desktop-only b. mobile-friendly
   c. tablet-exclusive d. non-responsive

2 Put (T) or (F):

1. Creating websites with AI requires advanced programming skills. (   )
2. The <footer> element often contains copyright information. (   )
3. A "prompt" is a text command given to an AI tool. (   )
4. The <body> section contains content visible to the user. (   )
5. Padding adds space outside an element's border. (   )
6. AI can now create full websites without coding. (   )
7. The <h1> tag provides a main title for the page. (   )

CamScanner

November Exam on Lessons (1 – 4)

1 Choose the correct answer:

1. The design that makes an application beautiful and attractive is ....
   a. UX b. UI c. AI d. none of them
2. The <header> tag defines the .... of the page or container.
   a. bottom b. top c. middle d. side
3. A successful website should have a .... design.
   a. complex b. cluttered c. simple d. random
4. .... is an example of an AI tool that helps in building websites.
   a. Jimdo Dolphin b. Wegic c. Both a and b d. None of them
5. In the CSS code h1 { color: brown; }, the part h1 represents the ....
   a. selector b. property c. value d. none of them

2 Put (T) or (F):

1. The <h1> tag provides a main title for the page. ( )
2. 📖 A main menu with clear buttons is an example of good navigation design. ( )
3. 📖 An external CSS file can contain HTML tags. ( )
4. 📖 The "About Us" page is used to display images of your activities. ( )
5. AI can now create full websites without coding. ( )

3 Complete the following sentences:

1. 📖 When choosing a .... for a user interface, it should be pleasing to the eye and easy to read.
2. The general syntax of CSS is ....
3. The <header> tag defines the .... of the page or container.
4. 📖 Text commands should be simple and .... for the AI to understand.
5. The web page used to provide information about yourself or the site is ....

CamScanner

Summary of Unit 2

Lesson 1 Principles of Designing Professional and Attractive Website Interfaces

User Experience (UX) Design: focuses on how people use an application or website, ensuring they can easily find what they need, feel satisfied while using it, and enjoy clear interactions.

Importance of UX Design:

- If the website/app is easy to use, the user will feel satisfied and return.
- If it is difficult to use, the user may abandon it forever.

Basic Principles of UX Design:

1. Ease of Navigation: Clear, simple menus make navigation quick and effortless.
2. Clarity: Information must be easy to understand.
3. Consistency: Maintain the same style across the website/app.

User Interface (UI) Design: The way the website/app/game appears visually:

- Are the colors attractive?
- Are the fonts easy to read?
- Are the buttons clear and usable?

Importance of UI Design: A beautiful, attractive interface creates a positive first impression; messy design discourages users.

Basic Principles of UI Design:

1. Colors: Choosing the right colors affects the user's mood.
2. Fonts: Should be legible and context-appropriate.
3. Layout: Organize interface elements logically, makes app or website easy to use.

CamScanner

Lesson 2 Web Page Format

1 From HTML to CSS:

- HTML describe the content of web pages.
- adding formatting to every page was time-consuming and costly.
- To solve this, W3C developed CSS which separates formatting from content.
- Css control the formatting of multiple web pages simultaneously.

2 Benefits of CSS:

- **Time-saving:** Formatting is placed once in a CSS file and applied to multiple HTML pages.
- **Loading speed:** The browser downloads the CSS file once and reuses it across linked pages.
- **Ease of modification:** Changing the CSS file updates the formatting of all linked pages automatically.
- **Improved aesthetics:** Pages become visually organized and attractive.
- **Improved readability:** Proper fonts and colors make content clearer.
- **Separation of design and content:** The CSS file controls appearance without modifying HTML structure.
- **Responsive design:** CSS adapts layouts for different screen sizes (computer, tablet, mobile).

3 Basic Structure of CSS: General Syntax:

```
Selector{Property:Value;}
```

- **Selector:** HTML element(s) to be styled (e.g., body, h1).
- **Property:** Formatting aspect to change (e.g., color, size).
- **Value:** How the property is changed (e.g., blue, 20px).

4 Ways to Add CSS to HTML:

- **Inline CSS:** Applied directly to an element.
- **Internal CSS:** Used to format individual HTML pages.
- **External CSS (preferred):** Best for large websites to unify the design and layout of their pages.

CamScanner

Lesson 3 My Digital Project for My School

1 Project Objective:

Design two web pages:

- School Data Page (contains school information and activities).
- Student Data Page (contains personal and contact information).
- Format both pages using External CSS for consistency.

2 Key Learning Points:

- Use of external CSS to unify the design across multiple pages.
- Clear HTML structure (header, sections, footer) improves readability.
- CSS enhances layout, colors, spacing, and visual appeal.
- Both pages share the same style.css file, ensuring consistency and reducing coding effort.

Lesson 4 Creating Your Website with the Help of Artificial Intelligence

1 Importance of Having a Website:

- Connect with the world and share ideas.
- Platform for self-expression (hobbies, talents, achievements).
- Showcase school projects professionally.
- Learn valuable digital skills for the future.

2 Role of Artificial Intelligence in Website Creation:

- Understands simple commands and builds professional designs.
- Saves time and effort (no coding required).
- Suggests creative ideas and adapts designs based on feedback.
- Transforms text commands (prompts) into a real website.

3 AI Tools for Website Creation:

- Wegic.ai: Easy to use, free plan, student-friendly.
- Jimdo Dolphin: Mobile-friendly, modern design, no technical skills needed.

4 Steps to Create a Website using Wegic.ai:

1. Log in and create an account.
2. Define website type, name, and content (school club, blog, hobbies, etc).
3. Choose design style and colors (2–3 max, harmonized).
4. Add essential pages (Home, About Us, Activities, Contact Us).
5. Insert content (text, images, galleries, contact forms).
6. Customize design, colors, fonts, and photos.

5 Tips for a Successful Website:

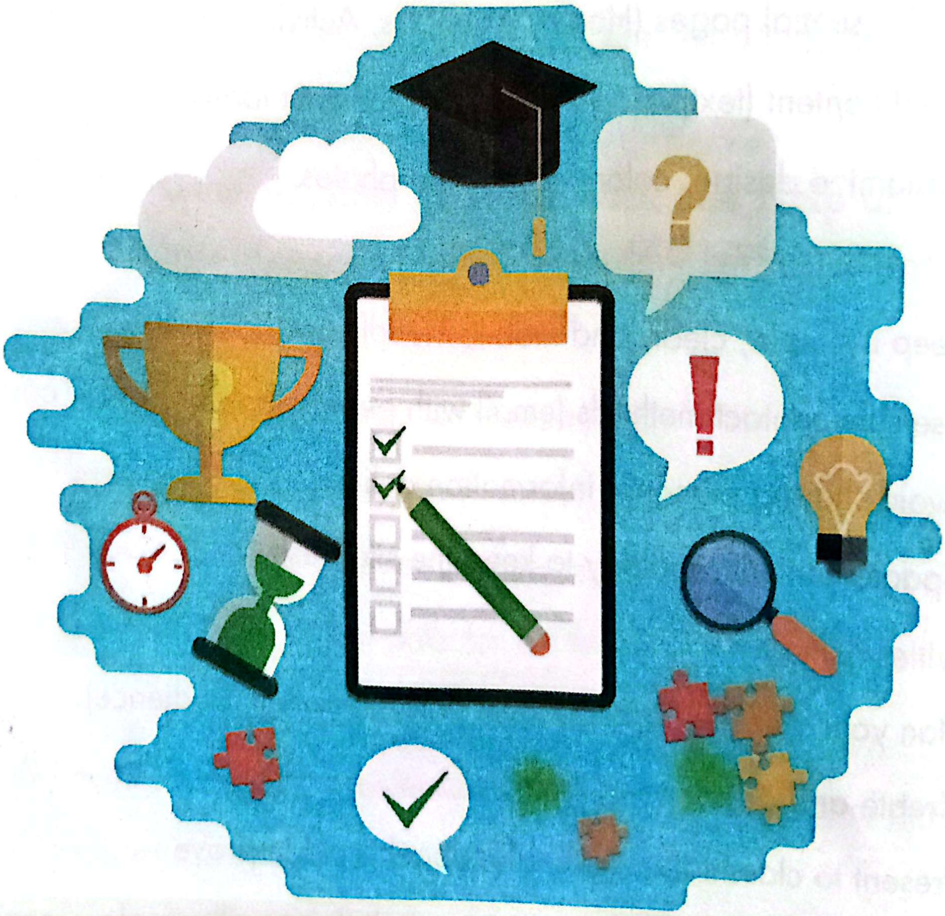
- Keep it simple, clear, and mobile-friendly.
- Use safe contact methods (email with permission, forms, QR codes).
- Avoid sharing personal information online.
- Update content regularly to keep the site fresh.

6 Activities & Projects:

- Plan your website (topic, pages, colors, content, audience).
- Create and adjust using AI tools.
- Present to classmates, gather feedback, and improve.
- Future projects: school magazine, digital art gallery, class project platform, science blog.

CamScanner

Final Exams



CamScanner

MODEL (1)

1 Choose the correct answer:

1. Data .... involves dealing with errors or duplication.
   a. collection b. storage c. cleaning d. analysis
2. What is the primary focus of User Experience (UX) design?
   a. The visual appeal of the design.
   b. The usability and effectiveness of the product.
   c. The colors and fonts used in the design.
   d. The website's loading speed.
3. What is the primary purpose of creating a website?
   a. Playing games only.
   b. Communicating and displaying information to the world.
   c. Storing personal files.
   d. Sending text messages only.
4. Which of the following technologies allow(s) devices to connect to the internet and exchange data?
   a. AI b. Robotics c. IoT d. VR
5. .... is a type of malware that encrypts files and demands money for access.
   a. Phishing b. Ransomware c. Botnet d. DDoS
6. After AI creates the basic structure of the website, what can you do?
   a. Nothing, it can't be modified.
   b. I can make minor changes to the design and text.
   c. I can recreate the website from scratch.
   d. I can delete the entire website.
7. How can robots be integrated into education using smart systems?
   a. By completely replacing teachers.
   b. By ignoring students' needs.
   c. By stopping all educational activities.
   d. By helping students solve questions and providing interactive explanations

CamScanner

2 Put (T) or (F):

1. Ransomware permanently damages your device. ( )
2. Smartphones do not generate big data. ( )
3. Structured data is data that comes in an unstructured form, such as customer data and financial data. ( )
4. The process of processing big data does not require storing that data. ( )
5. Advanced AI applications include predictive analytics and computer vision. ( )
6. User Experience (UX) design focuses primarily on the appearance of the product, not how it is used. ( )
7. The CSS language was created to facilitate the formatting of web pages and to separate the formatting from the content. ( )
8. Internal CSS is best used on large websites to standardize formatting. ( )

3 Complete the following sentences with the appropriate words or phrases:

1. Recently, to create a website that showcases your ideas to the world, you just need ....
2. User Experience (UX) design primarily focuses on making a product ....
3. In DDoS attacks, a network of compromised devices is called ....
4. In a smart car breakdown, ... shares data and location, AI ...., and .... perform the repairs or field assistance.
5. User Interface (UI) design primarily focuses on making a product ....

MODEL (2)

1 Choose the correct answer:

1 If a car is equipped with IoT and AI, what can it do when a malfunction occurs?

a. Send a message to the maintenance center with the location.
b. Turn off without informing the driver.
c. Wait until the driver detects the fault.
d. Shut down all systems.

2 What is the primary focus of User Interface (UI) design?

a. Ease of navigation within the application.
b. User satisfaction with the product.
c. The visual appeal of the product.
d. The logical organization of information.

3 What has made creating websites much easier now?

a. The increase in the number of programmers.
b. The use of artificial intelligence technologies.
c. The decrease in the price of computers.
d. The disappearance of programming languages.

4 What is the primary goal of a distributed denial-of-service (DDoS) attack?

a. Stealing user data.
b. Disabling a website or online service.
c. Spreading false information.
d. Spying on user communications.

5 If the soil is dry, how can smart systems in agriculture react?

a. Ignore the problem.
b. Reduce the amount of water.
c. Send a message to the farmer without taking any action.
d. Irrigate the soil automatically.

CS CamScanner

6. Why is it important for prompts to be simple and clear?
   a. To reduce the size of the website.
   b. To help AI better understand your request.
   c. To increase the number of visitors.
   d. To save time when publishing.
7. What is the suggested smart solution to address the problem of drought in agriculture?
   a. Using IoT to measure soil moisture, AI to calculate the required amount of water, and robots for automatic irrigation.
   b. Increasing water irrigation without analysis.
   c. Stopping agriculture completely.
   d. Relying only on rainfall.

2 Put (T) or (F):

1. Distributed denial-of-service (DDoS) attacks target only one device. ( )
2. Your mobile phone constantly tracks your geographic location and collects data about the places you visit and the apps you use. ( )
3. Unstructured data is data that does not come in a structured form such as tables or databases. ( )
4. Data cleaning means dealing with errors, duplication, or incorrect data. ( )
5. AI does not use big data to understand customer interactions with products and services. ( )
6. User Interface (UI) design is concerned with making the product easy to use and effective. ( )
7. One of the benefits of CSS is that it is used to design the structure and content of a page. ( )
8. CSS makes it easy to modify the appearance of all linked pages at once. ( )

CS CamScanner

3 Complete the following sentences with the appropriate words or phrases:

1. A targeted .... is an advanced type of phishing that targets specific individuals.
2. A tool like .... works based on the text you write.
3. A fundamental principle of UX design is providing a clear .... for the user to navigate between pages.
4. The prompt is the .... we enter into the AI tool.
5. When choosing a .... for a user interface, it should be pleasing to the eye and easy to read.

MODEL (3)

1 Choose the correct answer:

1. How can smart systems help reduce pollution?
   a. By increasing vehicle exhausts.
   b. By ignoring the problem.
   c. By shutting down all factories.
   d. By monitoring air quality and suggesting solutions.
2. Which of the following is a fundamental principle of User Experience (UX) design?
   a. Using decorative fonts to attract the attention.
   b. Providing clear and easy navigation for the user.
   c. Using as many colors as possible.
   d. Placing as much information on a single page as possible.
3. Which of the following is considered a social engineering technique?
   a. Using programs to crack passwords.
   b. Tricking people into revealing their information.
   c. Sending viruses via email.
   d. Exploiting software vulnerabilities.

CamScanner

4. An example of an AI tool that helps in building websites is ....
   a. Paint b. Word c. wegic.ai d. calculator
5. How can robots help in floods?
   a. By increasing the water level.
   b. By closing all roads for no reason.
   c. By draining water or rescuing people.
   d. By ignoring warnings.
6. How can a regular hospital be transformed into a smart hospital using smart systems?
   a. By removing all medical devices.
   b. By stopping all medical services.
   c. By linking medical devices to IoT, using AI to diagnose patients, and robots to assist in operations.
   d. By relying only on staff.
7. The main goal of using AI in website building is to ....
   a. transform you into professional web developers.
   b. introduce you to the capabilities of AI in website building.
   c. save money on programmers.
   d. create gaming websites only.

2 Put (T) or (F):

1. Social engineering relies on exploiting vulnerabilities in technical systems. ( )
2. Digital content such as videos generates big data. ( )
3. Semi-structured data is a hybrid of structured and unstructured data. ( )
4. Creating a website using artificial intelligence requires you to write complex codes. ( )
5. Big data helps machine learning algorithms recognize patterns and make decisions without human interference. ( )

CamScanner

6 One of the principles of UI design is to provide clear and easy navigation for the user. (   )

7 An external CSS file can be used to format a large number of HTML pages at once. (   )

8 Formatting HTML elements with CSS makes a page more organized and attractive. (   )

3 Write the correct terminology:

1 It is a design process aimed at making a digital product easy, useful, and enjoyable to use for the user. (..............................)

2 It is the process of designing the visual elements of an application or website in an attractive, organized, and easy-to-understand manner. (..............................)

3 It is a principle in UX design that refers to the importance of helping the user easily find what they are looking for within a product. (..............................)

4 It is the phenomenon caused by the increased harmful gases like carbon dioxide from factories and cars, leading to rising temperatures. (..............................)

5 It is a type of malware that encrypts your files or locks your devices, and demands money to restore access. (..............................)

CamScanner

MODEL (4)

1 Choose the correct answer:

1. What is the main role of sensors in IoT?
   a. Sending text messages.
   b. Manually operating devices.
   c. Repairing networks.
   d. Collecting and transferring data.

2. Which of the following is a fundamental principle of User Interface (UI) design?
   a. Making all buttons the same size and shape.
   b. Choosing colors that are consistent and pleasing to the eye.
   c. Providing multiple ways to accomplish the same task.
   d. Ensure that all text is unreadable.

3. When using AI tools to build a website, do you need to be a programming expert?
   a. Yes, you must be a professional.
   b. Yes, you need some experience.
   c. No, you don't need advanced programming experience.
   d. Only if you want a complex website.

4. What action can AI take when it detects increased air pollution?
   a. Ignore the data.
   b. Send warnings to residents and reduce factory emissions.
   c. Increase pollution intentionally.
   d. Turn off all devices.

5. What does the term "security updates" mean?
   a. Changing the appearance of the operating system.
   b. Adding new features to the software.
   c. Fixing security vulnerabilities in software and hardware.
   d. Speeding up applications' performance.

CamScanner

6 What is the smart solution to reduce traffic congestion in major cities?

a. Increasing the number of cars.

b. Using IoT to monitor traffic, AI to analyze data and direct cars, and robots to manage traffic lights.

c. Closing all roads.

d. Ignoring the problem.

7 What are some innovative solutions to reduce waste in homes?

a. Using robots to automatically sort waste, IoT to monitor quantities, and AI to suggest recycling routes.

b. Increased waste.

c. Dumping waste on the streets.

d. Inattention.

2 Put (T) or (F):

1. Sharing your personal information with anyone you trust online is always safe. ( )
2. Videos, images, and audio content uploaded or viewed online do not generate big data. ( )
3. Information extraction takes place before data analysis. ( )
4. Big data improves task automation in areas such as customer service, logistics, and finance. ( )
5. Using decorative fonts extensively improves the legibility of text in the UI design. ( )
6. The tag is still the preferred method for formatting text in modern HTML pages. ( )
7. In CSS code, the Selector defines properties such as color and size. ( )
8. The importance of websites is limited to large companies only. ( )

CamScanner

3 Complete the following sentences with the appropria[te] words or phrases:

1. .... tricks people to reveal confidential information or perform insec[ure] actions.
2. .... is used to describe the content of a web page.
3. .... models, like GPT, need huge text datasets to learn and genera[te] human language accurately.
4. .... is about considering how people use the application or website.
5. .... means that the user can quickly and effortlessly find what they are looking for on a website.

MODEL (5)

1 Choose the correct answer:

1. How can robots help in agriculture?
   a. By automatically watering plants.
   b. By selling crops.
   c. By shutting down farms.
   d. By storing water only.
2. What does the principle of consistency mean in UX/UI design?
   a. Use different elements on each page to make it stand out.
   b. Maintain a consistent style for elements throughout the product.
   c. Change the website design frequently to keep users interested.
   d. Use random fonts and colors.
3. How can smart systems improve the quality of life in cities?
   a. By increasing pollution.
   b. By shutting down all services.
   c. By improving services such as transportation, health, and energy management.
   d. By ignoring the needs of the inhabitants.

4. What are the scripts we write to an AI tool to create a website called?
   a. Codes b. Descriptive images c. Prompts d. URLs
5. How are the botnets used in DDoS attacks?
   a. Advanced artificial intelligence programs.
   b. A network of compromised devices that are remotely controlled.
   c. Superfast computers. d. A group of secure servers.
6. What is the main difference between IoT and AI?
   a. AI connects to the internet, while IoT analyzes data.
   b. IoT builds robots, while AI repairs them.
   c. IoT connects to the internet, while AI analyzes data.
   d. There is no difference between them.
7. How can the role of artificial intelligence in education be evaluated?
   a. It completely replaces teachers.
   b. It is not useful. c. It reduces students' interaction.
   d. It is a tool to enhance the learning experience and provide personalized explanation.

2 Put (T) or (F):

1. Big data can be easily processed using Excel. ( )
2. Governments generate data through population registers, statistics, tax data, and censuses. ( )
3. Emails are a good example of structured data. ( )
4. Machine learning and deep learning do not require big data. ( )
5. Big data is not the raw material that feeds artificial intelligence. ( )
6. Consistency in design means using the same style for elements throughout the product. ( )
7. An external CSS file is embedded in HTML using the tag. ( )
8. The body element in CSS can change the background of the entire page. ( )

CamScanner

3 Complete the following sentences with the appropriate words or phrases:

1. The first step in creating a website with AI is to define the .... of the website.
2. Maintaining .... in the design of elements such as buttons and icons creates a sense of professionalism and consistency.
3. An .... program helps detect and remove malware from your device.
4. To add a place to display your images on the website, you can ask the AI to add a section for ....
5. Attempts to steal your personal information via fake emails are called ....

MODEL (6)

1 Choose the correct answer:

1. Why is artificial intelligence important in intelligent systems?
   a. Because it analyzes data and makes intelligent decisions.
   b. Because it manufactures devices.
   c. Because it repairs broken devices.
   d. Because it provides free internet.
2. Why is usability important in UX design?
   a. To make the design look more professional.
   b. To increase user satisfaction and interaction with the product.
   c. To reduce the cost of product development.
   d. To make the product run faster.
3. If you want to make your website about a sports club, which prompt is the most appropriate first step?
   a. Choose a blue design. b. Add a contact page.
   c. Create a website for a sports club. d. Add pictures of books.

4. Why are robots considered an important part of intelligent systems?
   a. Because they completely replace humans.
   b. Because they perform mechanical or motor tasks based on AI decisions.
   c. Because they operate without an internet connection.
   d. Because they only analyze data.

5. If you were asked to design a robot to assist the elderly, what features would you add?
   a. The ability to remind them of their medication times and call for help in emergencies.
   b. The ability to clean only.
   c. The ability to play only.
   d. Not communicating with them.

6. What is the evidence that smart systems are successful in agriculture?
   a. Increasing water waste.
   b. Improving crops and reducing waste through smart irrigation and precise monitoring.
   c. Neglecting farms.
   d. No results found.

7. What is the biggest challenge in implementing smart systems on a large scale?
   a. High cost and maintenance requirements.
   b. Increased speed.
   c. Decreased efficiency.
   d. Unnecessary.

2 Put (T) or (F):

1. Big data analysis allows analysts, researchers, and entrepreneurs to make better and faster decisions. ( )
2. Satellites and GPS devices collect data about geographic locations, roads, and the environment. ( )

3 Big data has no role in the development and effectiveness of artificial intelligence. ( )

4 Big data is used to monitor networks and cybersecurity. ( )

5 AI is just a set of theoretical algorithms that are incapable of learning or delivering real value without big data. ( )

6 Ease of use does not affect user satisfaction with the digital product. ( )

7 The browser loads the external CSS file only once and then uses the saved copy. ( )

8 CSS makes it impossible to make a design responsive to different screen sizes. ( )

3 Complete the following sentences with the appropriate words or phrases:

1 The 5Vs of big data are ...., ..., ..., ..., and ....

2 When IoT, AI, and robotics work together, this is called ....

3 .... data is organized and arranged in tables with rows and columns, similar to traditional databases

4 .... is an advanced social engineering method where the attacker creates a fake story to trick the victim.

5 .... is an AI applications, such as face recognition and object detection, that rely on massive datasets of images and videos to train their models.

MODEL (7)

1 Choose the correct answer:

1. Why is artificial intelligence important in intelligent systems?
   a. Because it analyzes data and makes intelligent decisions.
   b. Because it manufactures devices.
   c. Because it repairs broken devices.
   d. Because it provides free internet.
2. Why is visual appeal important in UI designs?
   a. To make the product easy to use.
   b. To better organize information
   c. To leave a good first impression with the user.
   d. To make the product compatible with all devices.
3. To add information about yourself or the topic of your website, which page do you most often create?
   a. Contact page b. Photo page
   c. About Us page d. Home page
4. How can intelligent systems help fight melting ice?
   a. By increasing the temperature. b. By melting the ice more quickly.
   c. By ignoring the problem.
   d. By monitoring the melting rate and proposing solutions.
5. What is the main drawback of using robots in elderly care?
   a. Inability to provide emotional support like humans.
   b. Increased efficiency.
   c. Time saving. d. Cost reduction.
6. What is the most balanced view about the future of smart systems?
   a. They will completely replace humans in all areas.
   b. They will be life-enhancing tools with ethical controls.
   c. They will be completely useless.
   d. They will only increase problems.

CamScanner

7. What do IoT, AI, and robotics have in common in smart systems?
   a. They all operate independently without connectivity.
   b. There is no commonality.
   c. They are limited to large industries only.
   d. They integrate to create smart systems capable of communicatio analysis, and implementation.

2 Put (T) or (F):

1. Internet-connected devices are a source of big data. ( )
2. The characteristics of big data include volume and value. ( )
3. AI technologies help in processing and analyzing big data. ( )
4. E-commerce platforms rely on big data to understand customer behavior. ( )
5. The visual appeal of the UI can affect the user's first impression. ( )
6. The rel= stylesheet attribute is used when linking a CSS file to an HTML file. ( )
7. Writing a formatting code within each HTML page is more efficient than using external CSS. ( )
8. The prompt is the text command you give to the artificial intelligence to understand your request. ( )

3 Complete the following sentences with the appropriate words or phrases:

1. The About Us page is used to provide an introductory .... about the website's topic.
2. A .... program encrypts your files and demands a ransom to recover them.
3. Text commands should be simple and .... for the AI to understand.
4. A .... attack aims to disable a website or online service by sending massive amounts of requests.
5. The art of tricking people into giving up confidential information is called ....

MODEL (8)

1 Choose the correct answer:

1. In a smart car breakdown, ... perform(s) repairs or field assistance.
   a. IoT b. AI c. robotics d. GPS
2. How does IoT help in a smart home?
   a. By shutting down all devices. b. By repairing broken devices.
   c. By connecting devices to the internet to control them.
   d. By manually operating devices.
3. Which of the following examples illustrates a confusing navigation design?
   a. A main menu with clear buttons.
   b. A search bar in a prominent location.
   c. A list of overlapping, unorganized items.
   d. Clear links at the end of the page.
4. Why is it important to determine the colors and overall design of the website at the beginning of work?
   a. So that the icons appear better.
   b. To customize the basic appearance of the website.
   c. To increase the website speed. d. To attract more programmers.
5. What is the potential drawback of fully relying on IoT for smart systems?
   a. Reducing the efficiency of devices.
   b. Increasing the internet speed.
   c. Inability to make decisions without AI. d. No need for robots.
6. How can an early warning system for natural disasters be developed using smart systems?
   a. By ignoring the data.
   b. By waiting until the disaster occurs.
   c. By shutting down all systems.
   d. By connecting sensors to the IoT, using AI to predict disasters, and sending warnings via robots.

CamScanner

7. .... is the design principle that involves maintaining the same style throughout a website
   a. Clarity b. Navigation c. Consistency d. Layout

2 Put (T) or (F):

1. All data collected through social media is documented. ( )
2. The speed of data generation is not a characteristic of big data. ( )
3. One of the stages of big data processing is data cleaning. ( )
4. Big data does not allow models to be trained on a wide range of scenarios and conditions. ( )
5. A main menu with clear buttons is an example of a good navigation design. ( )
6. An external CSS file can contain HTML tags. ( )
7. Separating formatting from content helps speed up the editing and updating processes. ( )
8. After the website is created by artificial intelligence, you cannot make any modifications to it. ( )

3 Complete the following sentences with the appropriate words or phrases:

1. The stages of big data processing include ...., ..., ..., and ....
2. .... design is the way a website, app, or game appears.
3. .... does not come in a structured form and is difficult to analyze using traditional tools.
4. Interface .... is the presentation of information in a way that is easy to understand.
5. The text commands written for the AI tool to create websites are called ....

CamScanner

MODEL (9)

1 Choose the correct answer:

1. What is the name given to systems that combine IoT, AI, and robotics?
   a. Traditional systems
   b. Manual systems
   c. Mechanical systems
   d. Interconnected intelligent systems
2. What does an "Image page" add to your website?
   a. Introductory text.
   b. Contact information.
   c. Attractive visual elements.
   d. Audio clips.
3. Which of the following examples illustrates the use of inconsistent colors in UI design?
   a. Using simple color gradients.
   b. Using complementary colors from the color wheel.
   c. Using many bright, different colors randomly.
   d. Using white as the primary color with a muted secondary color.
4. How can AI improve the efficiency of self-driving cars?
   a. By increasing fuel consumption.
   b. By analyzing traffic and making safe decisions.
   c. By stopping the car suddenly.
   d. By ignoring traffic signals.
5. How can energy efficiency in cities be improved using smart systems?
   a. By increasing consumption.
   b. By turning off electricity completely.
   c. By using IoT to monitor consumption, AI to analyze data, and robots to automatically adjust appliances.
   d. By ignoring the problem.
6. How can the impact of intelligent systems on the environment be evaluated?
   a. They are not useful.
   b. They help monitor pollution and suggest sustainable solutions.
   c. They increase pollution.
   d. They are simply expensive.

7 .... is an important tip for choosing colors for a website with AI

a. Using many bright colors
b. Choosing clashing colors
c. Using only 2-3 harmonious colors
d. Ignoring contrast

2 Put (T) or (F):

1 Financial data is not considered big data. ( )

2 The variety of data types includes structured data, such as databases, and unstructured data, such as text, images, and videos. ( )

3 The data collection stage is the process of collecting large amounts of data from various sources. ( )

4 Computer vision applications, such as face recognition and object detection, do not require massive datasets of images and videos to train their models. ( )

5 Using many different colors improves the aesthetics of the design. ( )

6 CSS can be used to change the font size and color. ( )

7 When you change formatting in an external CSS file, the appearance of the linked pages is not affected. ( )

8 The About Us page is used to display images of your activities. ( )

3 Complete the following sentences with the appropriate words or phrases:

1 .... is the ability of a machine to think and make decisions like a human.

2 After creating the website, you can perform simple .... on the text and design.

3 One of the most important aspects of websites in the current era is that they are a means of .... and displaying information.

4 One CSS benefit is that it's .... by reusing a separate CSS file for many HTML pages.

5 .... is a type of malware that encrypts your files or locks your devices, demanding a sum of money (a ransom) to regain access.

CamScanner

MODEL (10)

1 Choose the correct answer:

1 What is the main function of artificial intelligence (AI)?
   a. Data transfer only.
   b. Data analysis and decision making.
   c. Device manufacturing.
   d. Powering the internet.

2 .... connect(s) different devices to the internet to exchange data.
   a. AI
   b. Robotics
   c. IoT
   d. VR

3 Which of the following is NOT considered contact information that might be added to a website?
   a. Email
   b. Social media link
   c. Phone number
   d. Designer's name

4 What is one potential downside of self-driving cars?
   a. Their complete reliance on artificial intelligence may lead to errors in the event of a system failure.
   b. They save energy.
   c. They improve road safety.
   d. They reduce accidents.

5 .... language is used to format the appearance of web pages.
   a. HTML
   b. CSS
   c. Python
   d. Java

6 What is an innovative function for using robots in public parks?
   a. Planting and trimming trees, and cleaning parks automatically.
   b. Neglecting plants.
   c. Increasing litter.
   d. Not caring for visitors.

7 A smart system designed to reduce water consumption needs ....
   a. IoT to monitor water consumption, AI to analyze, and robots to turn off taps.
   b. Air conditioners only.
   c. Offline smartphones
   d. Lighting systems

CamScanner

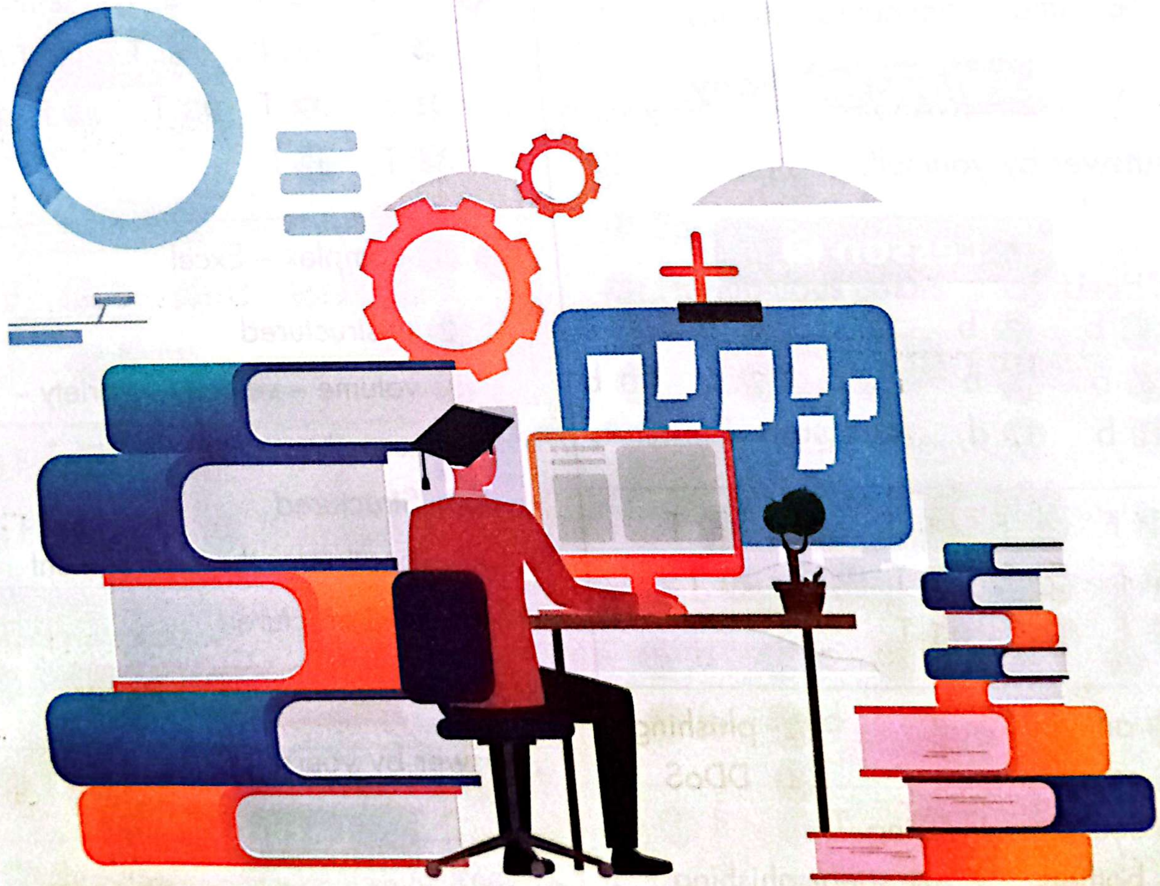
2 Put (T) or (F):

1. Online credit card purchases record data about the amount, store, and location. ( )
2. Veracity refers to the reliability and quality of data. ( )
3. Inline CSS is used to apply styles to all pages on a website. ( )
4. The data collection stage is the process of collecting large amounts of data from various sources. ( )
5. The role of big data in AI is to improve accuracy and performance and enable AI applications. ( )
6. The HTML language is used only to describe the appearance of web pages. ( )
7. Choosing colors and design at the beginning of work is not very important. ( )
8. You can use wegic.ai to create a simple website using text commands. ( )

3 Complete the following sentences with the appropriate words or phrases:

1. .... connects different devices to the internet to exchange data.
2. Using AI tools, you don't need to write any ...., AI will do all the hard work for you.
3. .... is used to train machine learning and deep learning models that can improve their performance over time.
4. .... is used to format the appearance of web pages such as font color and font size.
5. In a DDoS attack, the attacker uses multiple devices called .... to overload a server with requests.

Model Answers



Unit 1

Lesson 1

1
1 c 2 b 3 d 4 c 5 a
6 b 7 c 8 d 9 a 10 b
11 d 12 c 13 b 14 c 15 b
16 d 17 c 18 b 19 a 20 d
21 a 22 c 23 b 24 a 25 b
26 a 27 d 28 a 29 d 30 a
31 c 32 b 33 d 34 a 35 c
36 a 37 b

2
1 T 2 T 3 F 4 T 5 F
6 T 7 F 8 T 9 F 10 T

3
1 IoT 2 AI 3 smart
4 drought 5 sensors
6 Smart connected Systems

Play with Pony

- Answer by yourself.

Lesson 2

1
1 b 2 b 3 d 4 b 5 c
6 b 7 b 8 b 9 a 10 b
11 b 12 d 13 c

2
1 F 2 F 3 T 4 F 5 T
6 F 7 T 8 T 9 F 10 T
11 F 12 F 13 T

3
1 antivirus 2 phishing
3 ransomware 4 DDoS
5 social engineering
6 botnets 7 spear phishing
8 minds 9 pretexting
10 baiting 11 DDoS
12 social engineering

Play with Pony

- Answer by yourself.

Test Yourself on Lessons 1&2

1
1 c 2 d 3 a 4 c 5 b
6 a 7 c

2
1 T 2 T 3 F 4 T 5 F
6 T 7 F 8 T

Lesson 3

1
1 c 2 a 3 c 4 b 5 d
6 b 7 a 8 b 9 b 10 d
11 c 12 b 13 d 14 b

2
1 T 2 F 3 T 4 F 5 T
6 T 7 F 8 T 9 T 10 T
11 F 12 T 13 T 14 F 15 T
16 T 17 F

3
1 complex – Excel
2 unstructured
3 volume – velocity – variety – veracity – value
4 Structured
5 locations – the environment
6 semi-structured

Play with Pony

- Answer by yourself.

Lesson 4

1
1 b 2 a 3 c 4 c 5 d
6 a 7 b 8 a 9 c 10 b
11 d 12 c 13 c

CamScanner

2
1 F 2 T 3 T 4 T 5 F
6 T 7 T 8 F 9 T 10 F
11 F 12 T 13 T 14 F 15 T
16 T 17 F 18 T

3
1 big data 2 data collection
3 errors – duplication 4 threats
5 stored 6 E-commerce
7 scenarios 8 NLP – GPT
9 images – videos
10 data analysis 11 big data
12 AI

Play with Pony

. Answer by yourself.

Test Yourself on Lessons 3&4

1
1 d 2 b 3 a 4 c 5 d
6 b 7 b

2
1 F 2 F 3 T 4 T 5 T
6 F 7 T 8 F

October Exam on Lessons 1–4

1
1 b 2 c 3 a 4 c 5 b

2
1 T 2 F 3 T 4 T 5 F

3
1 threats 2 semi-structured
3 DDoS 4 Antivirus
5 sensors

Unit 2

Lesson 1

1
1 d 2 c 3 c 4 b 5 c
6 b 7 b 8 b 9 a 10 b
11 c 12 c 13 a 14 b

2
1 F 2 F 3 T 4 F 5 T
6 F 7 T 8 T 9 F 10 T
11 T 12 F 13 T 14 T 15 F

3
1 easy to use
2 beautiful
3 navigation 4 font
5 consistency

4
1 Ease 2 UX Design
3 UI Design
4 Ease of navigation
5 Harmonious colors 6 Usability

Play with Pony

. Answer by yourself.

Lesson 2

1
1 b 2 d 3 c 4 a 5 c
6 b 7 c 8 b 9 c 10 a
11 b 12 d

2
1 F 2 T 3 F 4 T 5 F
6 T 7 T 8 T 9 F 10 T
11 F 12 F 13 T 14 T 15 F
16 T 17 F 18 F 19 T 20 F

CS CamScanner

3
1. content and format
2. Selector – Property – Value
3. Inline CSS - Internal CSS - External CSS
4. Selector {Property: Value;}
5. color – font size

Play with Pony

1. HTML 2. W3C 3. CSS

Test Yourself on Lessons 1&2

1 1. b 2. c 3. b 4. a 5. d 6. b 7. c

2 1. F 2. T 3. T 4. T 5. F 6. T 7. T 8. T

Lesson 3

1 1. c 2. a 3. c 4. b 5. d 6. c

2 1. F 2. T 3. F 4. T 5. T 6. F

Play with Pony

- Answer by yourself.

Lesson 4

1 1. b 2. d 3. b 4. c 5. c 6. c 7. c 8. c 9. c 10. b 11. c 12. d 13. b 14. b 15. c 16. b

2 1. T 2. F 3. F 4. T 5. T 6. F 7. F 8. F 9. T 10. F 11. F 12. T 13. T 14. F 15. T

3
1. a website
2. creating
3. wegic.ai
4. text command
5. type
6. Image Gallery
7. information
8. clear
9. modifications
10. communicating

4 Answer by yourself.

Play with Pony

- Answer by yourself.

Play with Pony

1. IoT 2. NLP 3. AI 4. UI 5. UX 6. CSS

Test Yourself on Lessons 3&4

1 1. b 2. c 3. c 4. c 5. b 6. b 7. d 8. b

2 1. F 2. T 3. T 4. T 5. F 6. T 7. T

November Exam on Lessons 1–4

1 1. b 2. b 3. c 4. c 5. a

2 1. T 2. T 3. F 4. F 5. T

3 1. font

CamScanner

2 Selector {Property: Value;}
3 top 4 clear 5 About Us

Model Answers

MODEL (1)

1
1 c 2 b 3 b 4 c 5 b
6 b 7 d

2
1 F 2 F 3 F 4 F 5 T
6 F 7 T 8 F

3
1 AI 2 easy to use
3 botnets
4 IoT – analyzes the problem – robotics
5 attractive

MODEL (2)

1
1 a 2 c 3 b 4 b 5 d
6 b 7 a

2
1 F 2 T 3 T 4 T 5 F
6 F 7 F 8 T

3
1 spear phishing 2 wegic.ai
3 navigation 4 text command
5 font

MODEL (3)

1
1 d 2 b 3 b 4 c 5 c
6 c 7 b

2
1 F 2 T 3 T 4 F 5 T
6 F 7 T 8 T

3
1 UX design 2 UI design
3 Ease of navigation
4 Global warming
5 Ransomware

MODEL (4)

1
1 d 2 b 3 c 4 b 5 c
6 b 7 a

2
1 F 2 F 3 F 4 T 5 F
6 F 7 F 8 F

3
1 Social engineering
2 HTML 3 NLP
4 UX design
5 Ease of navigation

MODEL (5)

1
1 a 2 b 3 c 4 c 5 b
6 c 7 d

2
1 F 2 T 3 F 4 F 5 F
6 T 7 T 8 T

3
1 type 2 consistency
3 antivirus 4 image gallery
5 phishing

MODEL (6)

1
1 a 2 b 3 c 4 b 5 a
6 b 7 a

2
1 T 2 T 3 F 4 T 5 T
6 F 7 T 8 F

3
1 Volume – Velocity – Variety – Veracity – Value

CamScanner

2. interconnected smart systems
3. Structured 4. Pretexting
5. Computer vision

MODEL (7)

1
1. a 2. c 3. c 4. d 5. a
6. b 7. d

2
1. T 2. T 3. T 4. T 5. T
6. T 7. F 8. T

3
1. information 2. ransomware
3. clear 4. DDoS
5. social engineering

MODEL (8)

1
1. c 2. c 3. c 4. b 5. c
6. d 7. c

2
1. F 2. F 3. T 4. F 5. T
6. F 7. T 8. F

3
1. collection – storage – cleaning – analysis – information extraction
2. UI 3. Unstructured data
4. clarity 5. prompts

MODEL (9)

1
1. d 2. c 3. c 4. b 5. c
6. b 7. c

2
1. F 2. T 3. T 4. F 5. F
6. T 7. F 8. F

3
1. AI 2. modifications
3. communicating 4. time-saving
5. Ransomware

MODEL (10)

1
1. b 2. c 3. d 4. a 5. b
6. a 7. a

2
1. T 2. T 3. F 4. T 5. T
6. F 7. F 8. T

3
1. IoT 2. codes
3. Big data 4. CSS
5. botnets

PONY

ICT

الصف الثاني الإعدادي

الفصل الدراسي الأول

احرص على اقتناء كتاب الأستاذ في:

- Math
- Science
- اللغـــة العربيـــة.

130 جنيهًا

تابع كل جديد على صفحة سلسلة كتب الأستاذ

facebook Follow us PONY BOOK SERIES

للتواصل: 01001822242

تصدر هذه السلسلة تحت إشراف

سيف حمدي مصطفى

أحمد حمدي مصطفى